PRIMARY ARTISAN EDUCATION

W. P. WELPTON

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BY

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TO

MY WIFE

PREFACE

THIS book is the outcome of a deep sense of the unfitness of the primary schooling of to-day to prepare the artisan boy for his work in life and his duty towards the nation. During the twenty years I have been closely connected with primary schools, certain of their features have forced themselves on my notice: first, the longing with which the primary school boy looks forward to leaving school and entering work; second, the almost entire neglect of the school to look to the boy's future; third, the futility of much that is taught in the schools; fourth, the indifference of the nation's schools to the inculcation in their pupils of a national sentiment. These features of the primary school, it seems to me, are a source of national weakness, and can be removed only by reorganizing primary schooling so that its tone and pursuits will reflect the activities, ideals and spirit of industry and nationality. Such a reorganization I have attempted to outline in this book.

Education finds its end in a conception of manhood. But what particular conception of manhood should direct the activities of the primary school, what qualities and

powers should its life and pursuits discipline, and for what range of manhood's activities? Culture must find a place. The distinctive mark of man is mind or soul, and the development of the soul towards a life of wide intellectual interests, broad and tender human sympathies, and strivings after noble ideals is the distinctively human side of any education. But what of the other aspects of manhood? Shall utilitarian and civic ideals and activities find a place in our schools? I can in no way find a sufficient reason for excluding either the one or the other, or even for placing them in a position subordinate to culture. Work, industry, utility appeals to me as the foundation of manhood, as culture seems to me to be its crown. A free, independent and honest manhood can only be based on a free, willing and hearty acceptation of work as a duty to oneself and a service to the nation. Further, work should be more in one's life than a task to earn one's daily bread, more than a selfish ambition to win a place in the world. There is the joy of work, of making something, of doing it better than others can, of attaining a higher and higher perfection. Is not this something in life, and worth striving for in our schools?

The primary school of to-day shuts its eyes to the boy's future vocation. Educational theory condemns the utilitarian as contemptible. An industrial nation, however, cannot afford to leave the industrial ideals and powers of its future workers to chance. On higher grounds still, a manhood of industry is a worthy ideal for the boys and men of a great industrial nation, and it is a worthy educational aim that would see the nation's

schools inspiring in their pupils ambitions and ideals concerning their future work and training in them the beginnings of the skill and power to engage in it.

Further, I have felt no compunction in placing citizenship as one of the aims of the primary school. Of the secular duties, the first after earning the right to live is that of service to the country. I have not hesitated, therefore, to regard History for school purposes as the national tradition on which the corporate instincts of our boys can be worthily fed and raised to the plane of a high and strong national sentiment. Yet an unrealized sentiment is something of a sham. Some form of national service should form the natural outer expression of civic instruction. In what I have said on this topic I plead guilty to being a humble admirer of Lieutenant-General Sir Robert Baden-Powell, the founder of the Boy Scouts, an organization that is doing so much to build up in the boys of the nation an ideal of manliness and patriotism united to the duty of personal service.

More fundamental even than the manhood of industry and citizenship is physical manhood. It lies at the root of all power—individual, industrial, and national. To all forms of activity it gives enduring strength, spirited enterprise, and hardy courage. The primary school of today, however, is inspired by no ideal of physical manhood. Its physical education is bound in the shackles of a narrow hygiene and physiology that can evolve nothing more virile than such remedial and medicinal measures as school feeding, ventilation, and hygienic desks. Important as these are to health, yet we must own that a

strong manhood can never be built on such measures as these. Physical manhood is activity, strength, virility—of body, mind, and spirit—in abundance and running over to live, to work, to fight, to conquer, and to endure. In individual life it fills us with the joy of living and flings us into all forms of healthy, manly recreations and enterprises; in industry, it is the mainstay of our national supremacy; in our national life, it is vital to our freedom and Empire; to foster it should be the first duty of our nation's schools.

Culture, citizenship, industry, strong and hardy manliness—these have been my aims in attempting a reorganization of the primary school: these and a desire to see the artisan boy appreciating the value of the school by finding in the spirit of its work and the nature of its pursuits a life that has fruitful and living connexions of two kinds; first, with the innate tendencies of the boy's nature as they unfold themselves spontaneously in early adolescence, and second with the activities of the life towards which the boy's ambition is urging him. So the school would form a real bond between the boy and the world, a bridge to carry him forward from childhood into life to enter its activities with a full heart, a high purpose and developed power.

My thanks are due to Mr. James Graham, Secretary to the Leeds Education Authority, for his courtesy and kindness in permitting me to visit on many occasions the Leeds Preparatory Trades Schools, and to publish, as an appendix to this book, an account of the schemes and equipment of the one in the Holbeck district. These

schools were started in 1905 as an experiment. They are now beyond the experimental stage. They have proved themselves an educational necessity. They have shown how the 'industrial' can with success be brought into the schooling of artisan boys under the age of fifteen. It remains only for similar teaching to find its way into the senior portion of every school in an artisan neighbourhood.

W. P. WELTON.

9 *April*, 1913.

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"Our schools go all upon the *vocal* hitherto; no clear aim in them but to teach the young creature how he is to *speak*, to utter himself by tongue and pen; which, supposing him even to *have something to utter*, as he so very rarely has, is by no means the thing he specially wants in our times. How he is to work, to behave and do; that is the question for him, which he seeks the answer of in schools."

—CARLYLE in 1867.

CHAPTER I.

EDUCATION AND ARTISAN LIFE.

WHEN Agesilaus, the King of Sparta, was asked what children should learn, he replied, "What they should do being men". That was over two thousand years ago. Many times since in civilized Europe men have felt that something was vitally wrong with the education of the young; and some reformer, more clear-sighted and ardent than his fellows, has raised his voice and uttered the same pregnant thought. He has realized that for most of us life is action, a practical doing of practical things, that education should be a preparation for such a life, and that the schools of his time were out of touch with the practical realities of life. It is no new thing for the schools of the nation to be out of touch with the needs and activities of the life of the age. It is no new thing for the schools to be pursuing some worn-out curriculum, the dead bones of some traditional study, born, it may be, of the spirit of some previous generation, but, cut off from the source of its life's blood, only remaining to jangle its dry skeleton before the reluctant eyes of the young who, with their interests in the living world around them, are only driven to its embrace by the threats and pains of the rod. At no period in our history more than the present one has our national education had greater need of the counsel of Agesilaus, so oft repeated through the ages, so oft unheeded.

"What they should do being men." "Are we then,"

some may argue, "to put old heads on young shoulders? Are we to crush the tender bodies and minds of little children with the hard duties and tasks of manhood? Surely that were to deaden and cramp the expanding powers of childhood with burdens too heavy for them to bear. The tender growing shoots of childhood's nature should be nourished in the fresh breezes and warm sunshine of refreshing play. Only so will they open and blossom forth in all their freshness, beauty, and purity." This is but too true, but it is only one side of the truth. While nursing the tender shoots of childhood and fostering the flower of youth, we must not forget the ripening fruit of manhood. It is to the fruits of education that Agesilaus would point the warning finger. The goal of manhood is not reached in a stride and the child does not in an instant become a man; yet the path to manhood is there. The child must not be permitted to fly hither and thither, tasting all the sweets of unrestrained impulse in the garden of childhood's play, to find, when manhood's years are reached, that the path to manhood has been untrodden, and that instead of manhood's power and purpose to face life's battle, there are only incapacity, shiftlessness, and sloth.

Life is real, life is earnest. It is a strife and a struggle on a path that ever goes onward and upward. Toil, effort, and hardships mark its steps. Its highest joys are the joys of conquest, and the greatest virtues are those that inspire the heart and will to the most faithful and courageous effort. It is the noblest task of education to fit a boy to be "a hero in the strife". Even in the child, still more in the boy and youth, should the school inspire a lively faith and a strong courage to

> . . . . be up and doing
> With a heart for any fate,
> Still achieving, still pursuing.

Let the young child wander somewhat freely in the flowery meadows of childish joys, but let us not be reluctant to restrain his wanderings and guide him to the narrow way, leading and attracting him onward, helping him over the stony places, encouraging him to face the dangers and hardships and to find a joy in overcoming them, inspiring him with faith and courage for a noble effort, even, if need be, constraining him, at times coercing him, towards the goal of manhood's power, till finally we may leave him with the strength and purpose to mount the way alone. The activities and pursuits of boyhood and youth should be ever advancing in range and in difficulty, and in their demand on his intelligence, skill, and strength of will. Progressively appealing at each stage to the interests of the child, boy, and youth, they should always constrain him to keep his heart and will steadily fixed on a higher skill, a more complete knowledge, a finer intelligence, and a more forceful effort, till, manhood being reached, they merge naturally into life's strenuous work towards which, throughout each successive stage of growth, they should have trended, and for which they should have developed a fitting power of head, heart, and hand.

"What children should *do* being men." How much wealth of educational meaning lies hidden in that small word "do". Knowing and understanding are but part of the weapons for life. Action is the key-note of the man who can cope with the world, and it should be the key-note of the schools that train for a life in the world. In practical life the qualities that win the day are power of hand, the practical head, and a fighting spirit. Yet how little does such strenuous practical action enter into the education given in our schools, and especially into those schools—the schools for the children of artisans—the pupils of which most need these qualities of head, heart, and hand for a vigorous and active life in industry.

It is to the artisan schools we would turn our reader's attention. From these schools come those millions of workers whose hands will man the nation's factories and workshops. From them come those millions of citizens whose physique, intelligence, independence, honesty, and determination will make or mar the future of our race. The problem of these schools is a great and an urgent one, for in their pursuits and in the spirit of their work they are at present completely out of touch with the needs and activities of artisan life.

Our primary schools train clerks, teachers, and casual labourers. We all tacitly agree as to the two former. That they train the last will become evident as our argument advances. The schoolmaster himself, in every thought and deed, advocates the clerkly ideal of schooling. Follow him round his school. Watch him as he picks out what he calls his best scholars. "There's a fine scholar. He's a grand lad at his books. He will make a first-rate teacher"; or, "Look at that lad's copy-book. Copperplate, and not a mistake in his figuring. He'll make a first-rate lad for an office"; or, "That lad? Oh! he's no good at all. He's always up to some mischief, the restless young scamp." In these and a hundred similar remarks the schoolmaster betrays his ideals of schooling. His good scholars are those good at their books. He does not love the boy of superfluous physical energy, whose physical impulses are itching for something to do, and whose spirit is restlessly longing for something to struggle with. Such a boy in the classroom is wasted. The only outlet for his restless energy is mischief. If our primary schools trained their pupils for a manhood of industry, of hardy physique, and manly spirit, who would be the best pupils then? Surely it would be those best at the joiner's bench and the ironworker's forge, those most eager for games and contests, those with most

capable hands, ready wits, and hardy pluck. The budding clerk and teacher would be out of their element there. They would, in practical tasks, gravitate to the bottom of the class.

The parents, no less than the schoolmaster, are infused with the same worship of a clerkly education. "Let Tommy remain at school another year," says a fond mother. "It will give him a better chance in life." A better chance for what? To make of him a more skilled workman, or a more intelligent craftsman, or a better man? No, a thousand times no. The parents' hearts are set on Tommy rising above the workman's bench to the clerk's stool, and, if the fates are kind, to the teacher's desk. They are smitten with the worship of the black coat and starched shirt. Ease, respectability, and a competence are finer things than a manhood in rolled-up shirt sleeves, wielding a pick and spade.

The boy, at least the normal boy, is no less undecided in his opinion of the value of schooling. His verdict, however, is hardly the same as that of his teacher. The boy's eye is on the practical work of life, on which he is longing to enter. We may bemoan this characteristic of his, but we cannot help it. Nature has built him with physical impulses and an eye for the practical, and we must reckon with them. School to the older boy is a necessary evil, to be got rid of as soon as possible. He awaits the "leaving day" with eagerness when the attraction of "real work" will be open to him. "Curious taste!" we may say. It at least shows the boy has energy and does not shirk work. He simply shows a preference for the work to which his impulses are urging him. Shortsightedly, perhaps, he recognizes no value in the bookish and scholastic lore of the schools. "What is the use of all these things to me?" he asks; and wiser minds than his are asking the same question, and, though not

going the length of the boy in their distrust of class-room studies, they are failing to find any very satisfactory answer.

When we consider the past history of the primary school, its traditions, and the training and ideals of its teachers, we are little surprised that the spirit of words and books and of passive desk routine pervades the schools. As the fox trains his cubs in fox craft, so the schoolmaster trains his pupils in school craft. Each brings up his young in the ways that have best served him. So the schoolmaster educates not for life, but for the school. His ambition is not the joiner's bench nor the mechanic's lathe, but the classroom desk with its routine of bookwork. And this same spirit and routine of school craft have been the bane of all schools from the earliest times.

Monks were good trainers of monks, but could they train men for the life of the world? Their pride was in the youth not too strong of frame, nor too active of body, studious in mind and gentle of spirit. He made a good monk. The learned grammarians of a later age, did they train for life, or was it not rather for the pedantry of the learned professions? And a similar tradition is eating out the life of our modern primary school. As it was in the past, so it is now, and so it always will be as long as the schoolmaster caste is dominated by ideals of life other than those of the class they teach. The schoolmaster's learning is a learning of books. He knows no other. He can teach no other. To the life and spirit of practical industry he is an alien. He knows little, and recks nothing, of those qualities of head and hand that go to make the manhood of industry: consequently they have no place in his educational schemes.

The schoolmaster loves to read, write, and talk *about* things. He little desires a skill in handling, shaping, and

using them. His is a power over words, which, let us note, is only good if it gives him a power over things. Too often he is content with the ghostly symbol, the empty shadow of the real substance. His approbation is for a disquisition careful as to grammar, nicely turned in style, with fair store of erudition, showing a goodly choice of words lengthy of syllable, not too original, but after approved models, and faultless in spelling. To this end and to similar ends he trains those youths whose work in life is of their hands. But he abhors the workshop. Its noise and bustle, the independent activity of the boys over their work, the want of uniformity and of peaceful passivity are hurtful to his soul. He calls these want of discipline, for to him uniformity and conformity, not the restless spirit of busy work, are discipline. He feels more at home when the bustling life and activity of the workshop give place to the quiet passivity and uniform monotony of a desk routine. "Forty feeding like one" is too often his ideal of how a class should work.

Should there not be in the schools for our artisans the spirit of the workshop, multifarious activities resembling those of real life, and the spontaneity and initiative that come only from some measure of independent action? The virtue of the artisan's power is in actions, not in words. He needs power over things—power to understand them in order to use them. He has to interpret things in acts, not in words. His work is to transform and use them, not describe and explain them. Yet behind the doing should be the thinking, for imagination and thought should be the directors of our bodily powers. But in its thinking the mind should come into first-hand contact with things through the eyes and hands. Too often the function of words seems to be to take the place of things, rather than to aid in revealing their nature. Words may help in the thinking, do help, when

used with careful discrimination, by making our thought about things more accurate and distinct, so that we perceive qualities and relations that, without them, would have been obscure. But the influence of words as aids to thought is greatly exaggerated. Gestures and movements, and the images, more or less sketchy, of movements are frequently the symbols of our thought, especially of our thought of what we do with things and the use we put them to. In any case whether we over-estimate or under-estimate the value of words, their place in practical life is plain. They are only a means, an instrument for thinking more accurately and clearly about things so that the mind can bring the senses to a better perception of them, and the muscles to a more intelligent and skilful action on them.

Let us then sweep our artisan schools clean of the bookish, wordy spirit of the pedagogue and of the passivity, monotony, and uniformity of a desk routine. Let us bring in the active spirit of the artisan and craftsman, the noise and bustle of action, the pride in honest manual labour, the joy in a thing well made, the individual movement and thought of independent work, the spirit of manly strife with material to turn it to use, and of human struggle in hardy contests and games. So will the school life become a reflex of real life to which in some measure the school occupations will lead, and for which they will in part prepare. The school, then, will be the real world in miniature, and, as the real world has its industries and battles, so, too, will the school have its practical activities and contests.

It is important, then, that education authorities and teachers should give themselves seriously to the task of considering what qualities of mind and body are vitally necessary to the artisan in his capacity as workman, citizen, and man, and of organizing a system of school

pursuits that will arouse, foster, and temper those qualities in the young. Speaking broadly, we may class the qualities required by the artisan for his life as Health and Strength, Practical Intelligence and Skill, and Manly and Hardy Character. Let us consider each of these in some detail.

The physique of the mass of the nation is at bottom the measure of its power. Especially are physical constitution and power necessary in those who are "the hands and limbs" of a nation. On the physical constitution of the workers depends the vitality of the future race. On the muscle, bone, and sinew of its artisans and craftsmen a nation builds its industrial and economic progress. Our workers must be healthy of body, vigorous in vitality, hard of muscle, big and strong of bone, forceful in action, and hardy against fatigue.

Do our present primary schools train such bodily qualities? Doctors tell us frankly that as a class our artisans are undersized, underweight, and lack the vigour and hardness of frame that are essential to strenuous competitive industrial life. Recruiting sergeants, as openly as they dare, tell the same sad story, and shake their heads over the hollow-chested, flabby-limbed, weedy youths that present themselves to fight the nation's battles. Much of this physical degeneration is undoubtedly due to the unhygienic conditions of life that exist in the crowded industrial quarters of our large towns. Underfeeding, bad feeding, foul air, want of sunshine, long hours in hot, ill-ventilated, and crowded factories and workshops, fatiguing work during the years of growth—each has its devitalizing effects on the physique of our industrial population. At the same time we must own that our working-class population has not the love of fresh air, of country life, and of active physical recreation that would counteract to some

extent the evil consequences of town life. We pride ourselves on our national games and on the Englishman's love of exercise, but, as far as our artisan class is concerned, the national games are merely great spectacular shows. For one that plays there are tens of thousands that do no more than watch. Our national physique and love of exercise and sport are not to be measured by the qualities of our paid exponents of sport, but by the physique, habits of exercise, and love of outdoor games and sports of the ordinary man in the street.

Such qualities in a nation do not come by chance. They are the result partly of racial temperament, partly of conditions of life, and partly of early training. It is our boast that as a nation we have an innate love of outdoor life, of adventure, and of physical activity; that as a race we make good soldiers, colonists, pioneers, travellers, and adventurers. And our history does not belie us in this. We believe that at bottom the nation has still these racial characteristics, but that the bad conditions of our modern industrial life have suppressed them or warped them into perverse forms. If this be so, there is much for social reform to do, and much, too, for educational reform, so that early training may develop in our young an ideal of physical manhood, and a love of manly games and sports that will find a fitting reflex in hardy bodies, alive with healthy physical impulses and full of vigorous strength and vitality.

The primary school of to-day in its education encourages no ideal of physical manhood, fosters no love of outdoor exercise, and offers no means for training a hardy and vigorous physique. Follow the pupils through the schools from day to day and from month to month, through the eight years during which the state compels school attendance. The pupils are herded together, mewed up in classrooms, passive and immobile in desks,

sitting, sitting, ever sitting, listening, reading, and writing for five hours a day, for five days a week, for forty weeks a year, for eight years of their lives—and, saddest of all, for those eight years when the body is calling out insistently for the means, not simply to maintain health, but to stimulate a vigorous growth. During the period of growth, the body needs food, fresh air, and daily physical exercise, so that a rich, pure, life-giving stream of blood may be sent coursing vigorously through all the tissues to nourish them and excite them to active life and growth. Our primary schools not only do nothing, but do less than nothing, towards developing healthy life and growth in their pupils. They promote stagnation of physical vitality, rather than encourage vigour of bodily life. Instead of energetic, active, outdoor pursuits of a practical and physical character, we find in our schools the spirit and routine of a quiescent and sedentary existence. Were it not for the restless energy and physical impulses inherent in English boyhood, that break forth in outdoor play and mischief when the chains of the school desk are loosed, the health, strength, and vitality of our youth and future manhood would be poor indeed.

Behind the strength of frame should be a practical mind and a physical skill to guide it to effective action. To the artisan, practical intelligence and skill are his bread and butter. His is not the calm, reflective, and cautious thinking of the student that probes, weighs, and hesitates. His is rather the practical and constructive mind, the alert intelligence wide awake to all impressions, keen to seize on those that count, quick in judgment, ready in initiative, fertile in ingenuity, able with a dozen tricks to win success out of failure, and prompt in action. The organs of sense and of movement, the eye and the hand, must work skilfully together, through an alert, ready, and fertile brain. As we have said, the artisan must think in

terms of action, of how things must be moved, shaped, and transformed, and of how ends can be attained by many devices and accomplished in new and constantly changing conditions. And the thought and the action must often be so closely united that they are one and the same organic response; the fitness of the thought being at once tested by the fitness of the act, and its truth or falsity, its preciseness or vagueness, made manifest by it.

It is monotonous to ask again if our primary schools give serious attention to the training of such a practical intelligence and skill, vital to the pupils as future artisans, and vital to the well-being of the nation. Thousands of boys are launched every year into the vortex of industrial competition with no skill, no initiative and resource, no training in practical work, and no habits of practical industry. They are cast out from our schools to earn a few shillings a week as messengers or errand boys, left to pick up the virtues of practical industry as chance wills it.

The waste of boy life in our working-class population is appalling. The State forces the young boys into its schools, feeds them with a bookish learning, and trains in them the sedentary routine of a clerkly life. The pupils learn to read and sum, and to wield nothing mightier than a reluctant pen. To boys—who at thirteen or fourteen years of age will be left stranded to face life with the streets, the prison, or the casual ward as a possible goal—the State offers, in its schools, the pedantry of grammar and spelling, the culture of the immaculate copy-book, and the niceties of expressive reading. Surely no historic age could present a more cruel irony than this.

When one reflects on the tens and hundreds of thousands of casual labourers who are struggling to live on the verge of starvation, one is forced to the conclusion

that the *first* aim of education should be to train the power to live. Self-preservation is the first law of life. Important as literary culture is, not only to the leisured class but to the great mass of the nation, yet it should take a place secondary to the vital need, viz. the power of body and mind to compete in the main struggle of life, the struggle for a livelihood. Can we blame that increasing army of casual labourers and unemployables if, miserable, outcast, helpless, and discontented, they turn round on society and ask, "What have you done for us? You forced us into your schools. You taught us reading, writing and arithmetic, spelling and grammar. Of what use to us are these? Will they keep the cold out of our bones and put food into our stomachs?" If the inarticulate mutterings of discontent, hopelessness, and misery in this great mass could formulate themselves, they would pronounce the utter condemnation of all such schooling, "We asked for bread, and ye gave us a stone".

Character is as important in industrial life as it is in private life. Few will dispute the need of a strong, steadfast, and upright honesty in all branches of industrial work. Honest, good, sound workmanship, love of truth and a hatred of shams are often spoken of as characteristically English. An Englishman's word is his bond, and his work is sound and true all through. "Made in England" is a guarantee of honest workmanship. Such was, and we hope still is and will be, the Englishman's ideal of industrial and commercial honesty, for such honesty is vital, not only in business, but in every branch of public and private life. True, honest work springs from a love of work for work's sake, and a pride in perfection of workmanship. The true spirit of work is to work for the work itself, and to strive with the whole heart after a higher perfection. The labourer is worthy of his hire, it is true, but his heart should be in his work, not in his pay.

The spirit of good work begets in the workman a joy in strenuous effort, a pride in a task well done, and a respect for his own skill. Imbued with it he gives willingly of his best. He spares neither time nor energy to make himself a master of his trade. He has a contempt for the slovenly, the careless, the sham, and the shoddy. Such is the spirit which animates the amateur and the artist. The mountaineer and the traveller pit their powers against the forces of nature for the very joy and pleasure of the contest. The true sportsman spends himself freely for the love of the game. The artist looks only to the perfection of his art. Such a spirit we would have inspiring the artisan and craftsman in their tasks. We would see the artisan trained to be proud of himself as a master of his hands, proud of his work and skill, and would welcome the self-confidence, the self-reliance, and the independence that such pride would beget. "The glory of a workman, that he does his work well, ought to be his most precious possession; like 'the honour of a soldier,' dearer to him than life."[1]

The moral strength of a nation rests largely in the independence of its citizens. There is, however, a false as well as a true independence. It is the latter kind that stiffens the moral backbone of a people; the former saps the vitality of their moral strength. It is not a true independence that flings aside all restraint. To give way to unrestrained impulse, the love of excitement, the pleasure of the moment, the desire for ease, luxury, and contented living, is to be a slave of the world, the flesh, and the devil. True independence springs from an inner spiritual strength that accepts duty as a law of life, and holds to it through good and evil, through pleasure and pain. The highest freedom is enjoyed—in the fullest sense of enjoy—when the law of duty becomes a free,

[1] Carlyle, "Shooting Niagara, and After".

willing, and strenuous expression of our own nature. Then, indeed, is the service of duty "perfect freedom". A freedom apart from duty is a licence to every appetite, impulse, and craving to satisfy itself regardless of the claims of a higher life.

There are but too evident signs that the restless spirit of the age is seeking to free itself from all restraint. Doctrines our fathers held inviolably sacred are not only questioned, but contemptuously dismissed. Parents hesitate to curb their children's freedom of action. Children assert an early independence from the control of their elders. Nor in the overthrow of external restraints is an inner sense of duty manifesting itself. Men and women and—what should give social reformers and educationists pause—the rising generation fling themselves into the pursuit of excitement, amusement, and pleasure in a way that would astonish our more strait-laced forefathers. Duty is an irksome necessity grudgingly performed; work a means to find a wherewithal for indulgence for which leisure is the opportunity. Leisure, not work, is becoming the real business of life; and pleasure, not duty, its end.

The Stoic, the historic ideal of a self-contained independence, found his source of strength and happiness in himself. He sought to be master of himself and of all the world could bring him of pleasure and pain. He held himself free to take or to leave. The modern turns his eyes to the things of the world for his happiness. He measures his world by the fulness and intensity of the excitement and amusement it gives him. In failure he denounces his luck or lack of opportunity, and looks not to his own weakness. Vice, misery, drunkenness and all evil are thought of only as the results of the conditions of life. The submerged is what his environment alone has made him. Hence the trend of thought and of social

and political action is to seek salvation through an improvement in external conditions.

Like all half truths, such a doctrine is the worst of lies. Much in social regeneration and in the upbringing of the young depends on an environment that will give full opportunity for the development of mental and physical proclivities. For all real advance, however, the social and educational reformer must look to the spirit of duty and effort within each individual soul, and, collectively, within the national conscience and will. Legislation, by grandmotherly leading-strings, cannot eradicate the spirit of the gambler, spendthrift, drunkard, and idler. You cannot help a man who lies down and who feels within himself no manly impulse to struggle to his feet. Progress—spiritual, intellectual, or whatever else it be—comes from the inner impulse to meet life more courageously, effectively, and fully. So, too, with the young, the outer opportunities for development should be joined to an inner effort to rise to higher things. Their eyes should be turned to duties to be done, work to be accomplished, and perfection to be striven for. Their hearts should be fired to high purpose and their wills disciplined—by the discipline of inspiration rather than of restraint—to a manly and zealous performance.

Especially should the spirit of duty, of effort, of work, of manly purpose be strongly around pupils in the later years of school life. During this period, when the sense of personal freedom is increasingly asserting itself, the school should, in the spirit of its life, in its studies, pursuits and occupations, present a field of duties and work in which its pupils will willingly and joyfully spend themselves in zealous effort. The boy should not have to be dragged to school; he should not go to his school tasks grudgingly and under compulsion. The boy is no idler. He does not shirk work. We must, however,

remember that the energy with which he will fling himself into duties and tasks is in proportion to his sense of their value to him; and only from a wholehearted, willing performance will spring the joy of true work, a pride in increasing power, and a true sense of responsibility and independence that honours duty and work before pleasure and amusement.

In industry, in the competition of the world, and in the individual soul, life is always a struggle for mastery. We master nature's forces and turn them to use by our strength, skill, and intelligence. We compete with our fellows in various capacities. Within ourselves we seek to conquer the lower to attain the higher self. In this constant, many-sided battle it is the keen, manly, fighting spirit that wins. England prides herself on the pluck and grit of her sons. To their fighting spirit she owes her vast empire, and her splendid roll of world fighters and explorers. By the fighting enterprise of her workers and captains of industry she has made her world position in commerce. A strong fighting spirit is the finest asset an industrial, commercial, and colonizing nation could have, and it is the highest duty of a national education to arouse and foster it in the young. It should, however, be developed in an atmosphere of honour, chivalry, and fair play. In its strength it should inspire the boy to set his teeth, and, with his back to the wall, determine he will never be beaten. It should be generous enough to scorn the mean cunning and craft of underhand tricks. It should lean rather to a fastidious nicety of openness. It should give hard knocks, and should take them and be proud to bear them unmoved. With such a spirit success would be no success unless the struggle had been worthy, the difficulties and dangers great enough to call for effort, and there were scars to bear witness to the keenness of the fight.

In contrast with the fighting spirit is the spirit of co-operation. Man is a social animal, and much of the work of industry and of national affairs is performed by co-operative effort. Co-operation is acting together, but it is not uniformity of action, all doing alike and all being equal. There is little real co-operation in five hundred men drilling at the word of command. In co-operation there must be unity and harmony, for all are working for a common end, but not necessarily uniformity and equality. Each member of the whole has his place and his part to fulfil in the scheme of things, and the common end is attained by the harmonious fitting and dovetailing into each other of all the various activities to make a combined action. Behind the unity of action, however, must be unity of spirit. Each member must in spirit identify himself with the common end, and lose—or rather merge—his individual self in the corporate self. The individual personalities have to be absorbed into a wider social personality, making a corporate entity with corporate feelings, a corporate intelligence, and a corporate conscience and will, distinct and different from the feelings, intelligence, conscience, and will of each member as an individual. A person on a committee, as a citizen, in a team, should be, and usually is, swayed by feelings, and should judge by a conscience, different from those that animate him in his capacity as a private individual. It is in this sense of sharing in a corporate intelligence, conscience, and will, that we speak of 'esprit de corps' as the essential virtue of co-operative life.

Each member of a corporate body, in occupying his place and doing his work, is dependent on the work of every other member. The success of the whole action depends on each knowing his place and function, and doing it without encroaching on the duties of another. Hence, in co-operative action, there must be a law recog-

nized by all, and administered by officers placed in authority, to which and to whom each member should give a willing and hearty submission. Such government, however, should not be the rule of the autocrat, nor the obedience the subservience of the slave. Each—governed and governor—in his place and function should carry out the law. The leaders should recognize in the obedience of the followers a willing submission to them as officers of the law, as the followers should see in the commands of their leaders the corporate law asserting itself for the attainment of the common good. The key-note, then, to harmonious co-operation and to a strong esprit de corps, is loyalty to those in authority in their expression of the corporate will.

The true spirit of co-operation is much needed in our modern industrial and national life. There is, however, much of a sham kind seen where co-operation is used for private and selfish ends. For example, the workers in an industry combine to improve their pay and conditions of labour; the masters to resist the pressure and to keep up prices against the public. Each of these may be a narrow and selfish kind of co-operation. Both masters and workers ought to consider themselves as co-operators in the whole industry, and, further, should subordinate the good of those inside the industry to the welfare of the public as a third party in the co-operation. The function of an industry is to provide for some want of the public, and the duty of all concerned, masters and workmen, is to provide an honest article at an honest price. The workmen should be as much concerned about the honesty of their work, and the reasonableness of the price, as about their wages and the conditions of labour. The masters should look to the welfare of their workmen and justice to the public with as keen an eye as to the size of their profits. The public, as the third

factor, should raise their minds beyond price and quality to the interests of both masters and men. Each party, then, has its duties to the other parties, as well as its rights. Human nature, however, is rather prone to think of rights first, and of duties when it must. There is much need of a moral discipline that will give a fuller enlightenment, a wider and less selfish social view, a more healthy spirit of trust and confidence in one's fellows, and a stronger loyalty and public esprit de corps.

The qualities of character, then, that are eminently necessary to an effective practical life in industry and public affairs, are a spirit of truth in work and of perfection in workmanship, an independence based on a strong sense of duty, a strenuous and determined fighting spirit to press forward to success in all enterprise by all honourable means, and a loyal and trustful esprit de corps with no narrow class limitations. We are to ask whether the present primary school fosters and tempers such characteristics, either by the tone of its work or by the nature of its pursuits. As in the promotion of a vigorous health and an active strength, and, again, in the development of an alert and resourceful intelligence and practical skill, so, also, in the formation of a character to meet the trials of work and life, the primary school is found wanting. Neither in the tone of its work and discipline, nor in the nature of its pursuits and occupations, does the school of to-day fit its pupils in character for the practical life they will have to live.

The tone of work and of discipline that seems more and more to prevail in our schools is inclined rather to weaken the ties of duty, and to relax the strenuousness of effort, than to strengthen them. Duty, effort, work, hardship, are losing their hold on the nation's schools; and play, amusement, and pleasurable excitement — falsely called interest—are becoming more and more the

recognized appeals to learning. How can it be otherwise when self-indulgence, amusement, ease, and luxury are increasing their sway over the parents and the children out of school? Parents have almost given up their duty of giving serious attention to the upbringing of their children. It is too irksome a task, and entails too much continual worry and inconvenience. It is much easier to soothe the conscience and smooth the daily path by handing over the whole responsibility to those who are paid for it. So the children early go their own way, which is the way of self-indulgence.

The same canker is rotting the strength of the school work and discipline. Once duty and work, with a stern discipline—narrow and often mechanical, it is true—were the marks of school life. The pupils won their learning by labour. In many, doubtless, it begot a lifelong detestation of study. In some, learning was prized as a precious jewel to be sought with an eagerness in proportion to the difficulty of the task. The swing of the pendulum has brought measures and evils of an opposite kind. Our textbooks on education tell us that pupils should play at work, that lessons should please and amuse, that teachers should tickle the fancies and excite the palates of their pupils to attract their interest and win their attention. Misbehaviour should be reasoned with. The strong word of reproof, the firm constraining hand, the stern will holding the youth to work and duty should give place to sympathy, kindness, and moral suasion, for they might wound the erring youth's feelings, and provoke a fit of obstinacy or passion. Force, especially physical force, would degrade the humanity in the boy. Restraint should be exercised so gently, it should be so sugared and wrapped up in the silver paper of seeming freedom, that the wilful youth may be cajoled into—we will not say good or dutiful—but desirable and convenient

ways. Are we so much wiser and better than our forefathers, so much more capable and successful in our training of manhood and womanhood, that we can dispense with the wisdom of Solomon and all the ages, or are our children made of some more refined and delicate clay than those of the past?

With the relaxation in the discipline of the home and school, can we wonder that children grow up self-indulgent, wayward, fretful of restraint, seekers of pleasure and excitement, sullen in duty, flighty in effort, and without steadfast strength in their work? Our schools need a stronger and firmer tone. Character, like steel, must be tempered to hardness in fire. We would wish in our schools to differentiate between the discipline and pursuits suitable respectively for the infant, the child, and the boy. To the infant, school should be largely a playroom; but to the boy, and especially to the boy looking forward to entering work, it should be largely a place for work, interesting work, pleasant work, work the pupil likes and values, but essentially work, real, downright, hard, honest work demanding effort, toil, and trouble. And what boy will not respond with effort, toil, and trouble to tasks that he is interested in and that he values for the power in his life he finds they bring him? The key-note to good teaching is not pleasure, or amusement, or excitement, or any other form of spurious attraction, but *value*. Let the boy understand, feel, and experience, with all the fulness, clearness, and intensity that he is capable of, the value to him of what is being taught, and interest springs up in his heart, and zealous and strenuous effort follows naturally in its wake. There is, then, no need to force him to work and compel him to duty. He will force and compel himself, and the inspiration of the teacher's influence and example finds its truest work in pointing the way to higher and greater tasks, and in stiffen-

ing and hardening the inner impulse to a more strenuous and determined effort.

Our ease-loving parents and teachers inoculated with the modern virus of "interest" will find food for reflection in comparing our soft-hearted methods of mental and moral discipline with the sterner measures of the schools of an older age. Lucian gives us a vivid account of the discipline of youth in Sparta.

"But especially guard lest you ridicule if you see young men beaten upon a trestle and flowing with blood, while fathers and mothers stand hard by and are not undone by that which occurs, but, rather, if their children do not endure the blows, they chide, and they pray their offspring to be adequate for their toil as long as possible, and to be patient under suffering. Many, indeed, in the past, because they have not deemed it honourable while still alive and under the eyes of their relatives to become weary and to yield to their bodies, have died in the contest. You will see the statues of such heroes set up in Sparta, and their names publicly honoured.

"When you see these customs, neither suspect that they are mad nor say that they endure suffering without adequate cause, nor that a tyrant compels them, nor that their enemies enforce it on them. Lycurgus, their lawgiver, will speak many rational words in behalf of their customs; how from a plain understanding of the necessities of the case he chastises the youth; how he is no enemy; that he does this not from hatred, nor does he institute it to waste to no purpose the youthful energy of the body politic, but he does this because he considers that those who shall save their fatherland must be most patient and superior to all suffering."

Apart from the enervating character of the modern school discipline and work, the pursuits of school life are little calculated to foster the hardier, more vigorous,

spirited, and manly virtues in our boys. An indoor sedentary life of books, of reading and writing, and of listening will not arouse a keen fighting spirit and a manly pluck and hardihood. Nor will the class-room studies inspire any strong and active feeling of loyalty and esprit de corps. Loyalty and esprit de corps require a freer and more spontaneous outflow of impulse, a warmer and more intense outpouring of feeling, a more active display of initiative in action, and fuller opportunities for the accepting of responsibilities than are possible in the passive obedience of the class-room discipline. For an active and intense corporate spirit there should be pursuits and occupations which the boys can manage largely themselves, in which there is a kind of government centred largely in their own members, and in which the impulses and activities of the boys can find a free and spontaneous outlet in ways approved by the corporate conscience. Such opportunities are given in the sports, games, and contests of the gymnasium and playing fields, and in the societies and clubs for natural history, sketching, rambling, photography, and the like that should be lively adjuncts to every school.

To cultivate the hardier and more manly elements of character, we must look to pursuits more vigorous and stern, more full of strife and struggle, and with more appeal in them to the virility innate in all boys than the culture studies of the classroom. Handicrafts calling for a mastery of different materials from soft clay to hard oak and tough iron—skill in which only comes by patient and persistent effort long continued day after day and after many failures—provide an excellent training in determination in the accomplishment of a practical end. To handicrafts, too, we must look for the development of a pride in manual work and skill, and for inspiring in the pupils ideals of perfection and honesty in workman-

ship. To handicrafts we must add those games and contests, the essential feature of which is struggle, but a struggle in which physical strength and skill are guided and enforced by intelligence and spirit. Boxing and wrestling contests, football, hockey, and cricket, and most of the struggling, fighting, scrambling, and tussling games native to English soil and character are, in the fullest sense of the word, an education of body, mind, and spirit. They demand strenuous physical exertion and so develop health and strength. Success in them requires an alert mind, ready and ingenious in resource and quick in responsive action. Above all they stimulate the fighting spirit of the youth, harden his courage, temper his passions, and fire a strong and loyal esprit de corps. Born of the virility of the English character they are the truest means for maintaining it unimpaired.

Many mothers, and not a few fathers of the more grandmotherly kind, will doubtless object to the danger of knocks, blows, bruises, and even of greater damage to body and limbs. It is, however, largely because of this element of danger that sports appeal to the English youth, and it is largely in this element of danger that the value of contests and games lies. They teach a boy to take a blow without whining and bearing ill-will, to stand up for himself and face odds with a certain recklessness of danger without which, as Mr. R. L. Stevenson rightly says, "you cannot be sure in the common run of men of courage on a reasonable occasion".[1]

"But would you have boys fight with each other?" asks the humane, pain-fearing mother. Certainly, madam; and why not? There is nothing wrong, degrading, or unwholesome in fighting and in giving and taking hard knocks and blows. Fighting calls out all that is in a youth, all that is best and, it may be at times, all that is worst.

[1] "Virginibus Puerisque."

Evil comes if bad blood and foul passions are roused. Hence the fight round the school corner often does harm, for the spirit of fair play and self-restraint is not infrequently swept aside by the hot rivalry and revengeful passions aroused. But the more the self is stirred to its depths, the greater perhaps is the danger of the will being overwhelmed by the flood of passion, but the greater, too, is the discipline of strength if the reins be held wisely and firmly. To fight under rule, under discipline, and under the restraint of a moral atmosphere of scrupulous fair play holds the evil passions in check, and guides the fighting spirit to an honourable display. Thus, one of the most important duties of those who supervise the contests and games of boys is to cultivate among them a code of honour, and to deal decisively, and yet in a manner to impress the boys and win their sympathy, with any attempt at meanness, any display of passion, any show of overbearing manner, or any exhibition of unrestrained triumph.

Nothing can take the place of games and contests in the education of youth, and no education is complete without them. Together with a thorough course of handicrafts with varied materials, they form an essential part of the training for artisan manhood, or, indeed, manhood of any kind. We complain of the classroom studies in that they foster the sedentary spirit and habit, not only in the body, but in the intelligence and character as well. They are necessary in an age of culture and civilization, but, being necessary, there is all the greater need for a strong antidote. Handicrafts, practical pursuits, games and contests are the antidote to stimulate all those qualities of body and mind that are left unexercised by the tasks of the classroom but are essential to an effective practical life.

Reviewing the whole of our argument, we see that the

artisan primary school should take its stand on the principle of training power—power of head, heart, and hand—for a practical life in a practical world of work, industry, competition, and co-operation. Its means are the workshops, workrooms, gymnasium, playground and playing fields in which, through practical and physical pursuits, health and strength, practical skill and intelligence, and a manly, hardy spirit will be trained. These pursuits should be no mere addenda to the school, extras provided for recreation and amusement and for a pleasing change from the classroom study, or as a medicinal tonic to be taken in small doses a few times each week. They are to be considered as part of the real, serious work of the school, vital and essential to the very idea of education. So fundamental are they that the curriculum and time-table should be organized, the staff trained and selected, the school buildings planned, and the equipment designed with the practical and physical end largely in view. We would not shut out from the school the higher spiritual life of culture. The culture of books, the instruments of learning, the national tradition of history, the wider outlook on world affairs and on nature are every man's inheritance. We only wish to place the conception of a practical and physical manhood alongside that of a manhood of culture, and to give to it in the school a position commensurate with its importance in life and the strength of its appeal to the human nature in the boy and man.

CHAPTER II.

THE ARTISAN SCHOOL: ITS PLACE AND FUNCTION.

THE educational needs of a town can be effectively met only by an organization of educative institutions, designed to serve the needs of each great class of its inhabitants. An inefficient organization—whether in the kinds of schools provided or in the internal working of each—means waste, and that saddest and most sinful of all wastes which throws a large number of youths on the world, ill-prepared to do the work the world demands of them. One principle, and one principle only, should inspire our authorities in every part of their educational administration. Every school—primary or secondary—should do all in its power to prepare its pupils to enter with fully developed faculties on the work of manhood.

Manhood is a broad term. It covers the whole aim of every kind of education for boys. The very breadth of its meaning raises the question of its content in relation to each kind of school. All must agree, however, that its meaning must have reference to the conditions of modern life. We cannot set the clock back even if we would. Life has to be faced as it is. Historians and philosophers may discuss, if they wish, classical and mediaeval conceptions of manhood, but what most concerns us is the type of manhood that will be most effective in carrying on the work of modern life.

Modern life presents to us a most confusing complexity. The activities man may be engaged in are as many and

varied as the most fanciful imagination can desire, and demand the development of a many-sided interest and power. Three classes of activities, however, stand out pre-eminently as being those in which every man should engage if he is to realize his potential manhood with any fulness.

These are :—

1. The activities of a man's individual life which he carries on in his own leisure time, and which show his personal tastes; they may be said to express his culture.
2. Civic activities, national and municipal.
3. The activities of his profession, business, trade, or craft; these comprise his "work".

There are many who are doubtful about including utilitarian work in their conception of education. The very mention of utility gives their educational consciences a painful shock. Education to them is the preparation for a cultured spiritual life in which "bread and butter" work finds no place. The term "manhood," of course, is frequently mentioned in their educational theory, but it is an emasculated manhood divorced from all concerns of daily toil. What is such a manhood worth? What appeal to a virile youth can a manhood have that is unsullied by the taint of utility, that is dissociated from those activities that every boy of the middle and working classes is looking forward to during adolescence as the essential and distinctive work of man's estate, and that is cut off from those occupations that the majority of men hold to be high and honourable duties and the mainstay of a free and independent manhood? Such a manhood is but a dreamy ideality that has little bearing on modern life, and is at heart spurned by three parts of the nation.

Education from the renaissance to the nineteenth century was the privilege of the leisured class. For

those who did the manual labour of the world, an apprenticeship was thought more than sufficient. To educate a boy above his station was to violate the eighteenth century notion of the church catechism. Hence education came to mean rather a training in how to spend an income like a gentleman, than a preparation for earning one like a man. Rousseau struck the first blow against this educational snobbery. In the "Emile" he says: "He who eats in idleness what he has not earned, steals. . . . To work is a duty indispensable to social man. Rich or poor, powerful or weak, every idle citizen is a knave." He would, therefore, have Emile learn agriculture as the most honourable, most useful, and consequently the most noble of occupations. To agriculture he would add a craft or trade in order to raise him to a free and independent manliness; for by his trade he will live "a free, healthy, true, industrious, and just man".

In his insistence on the duty, dignity, and honour of work, Rousseau sounds a note that will in the long run be the death knell of the traditional conception of education. The old tradition dies hard, and nowhere is it more strong, and its influence more fatal, than in the primary schools. Educational theory and practice have yet to learn that, to the earning of a livelihood, there may be brought as strong and fine a manhood, as keen an intelligence, as pure a taste, as good a morality, and as wide a humanity as to any of the occupations of leisure. The utilitarian pursuits, it is true, should not make up the whole of life, but they are not a contemptible part of it to which philosophy and education should be blind. Rather are they responsibilities and duties into which a man should throw his whole manhood, and from which he should gain a great and noble pleasure. In fine, we claim that work can be one of the greatest disciplines, one of the greatest privileges, and one of the greatest happinesses

that life can offer, and that education should lead youth to the full enjoyment of these blessings.

Culture, citizenship, and "work" make up the threefold principle on which to organize the schools of the nation. By what characteristics, then, shall we differentiate between the kinds of schools? We cannot discriminate between one class of school and another on the grounds of the kind of culture and citizenship. These are the common heritage of all. There is not one kind of literature for the primary school and another for the secondary. Literature, art, and knowledge are the same for every one. There may be differences of scope and degree, according to the opportunities available to different classes in the nation. The man of leisure can extend his reading to the ancient classics and to foreign literatures. He can cultivate a catholic taste in art, music, and architecture. He does not gain thereby a kind of culture or a form of appreciation different from that which the poor man should obtain. He has greater opportunity and leisure, and his taste may range over a broader field and reach a higher pitch than that of his working brother. But the poor man has his public libraries, concerts, and art galleries, and it is for education to see that he has every opportunity to go some way on the road along which his more wealthy neighbour may travel far with ease. The poor man's life may not be so wrapped up in the things of culture, and its atmosphere pervaded so exclusively with the spirit of truth and beauty, yet his appreciation in his more limited field can be made just as intense as that of the rich, and his pleasure from it equally great. We may, then, discriminate between the secondary and primary school only as to the scope of the intellectual culture given, and the degree to which it is carried. There can be no discrimination in respect of kind. Both classes of schools begin at the same starting-

point and proceed on the same road. The secondary school, however, can range wider and go farther than the primary.

A similar conclusion holds in the field of citizenship. The national sentiment for the poor cannot be different from that for the rich, and the rights and duties of citizens are the same for all. Primary and secondary schools can but base their training for citizenship on the same conceptions of national feeling and duty, and on the same tendencies of youth towards them.

The utilitarian work of the various classes of the nation, however, varies enormously. Some occupations are markedly physical; others strongly intellectual. The artisan in his work needs skilled strength and a practical intelligence in dealing with materials and forces. The business man requires a wide knowledge and an intelligence that should take a broad sweep in bold flights of the imagination, and yet be restrained by an acute insight into practical conditions. The professional man must have a wide and acute grasp of the philosophies, sciences and history of his branch of learning—law, medicine, divinity, education, or whatever else it may be. The training for these different kinds of work varies enormously. The training appropriate for each differs from that for the others in the length of time required for effective preparation, in the nature of the pursuits, and in the period of life at which it can best be given. Hence schools may differ markedly with respect to that part, or rather aspect, of their instruction that bears on the future "work" of the pupils.

The educational problems, then, that face us in this twentieth century are: what types of schools should be instituted to satisfy the differing needs of the various classes of the nation with respect to "work"; what should be the nature of the instruction and training that are best

suited to realize the aims of each kind of school; in what way should the ideals of culture, citizenship, and "work" be effectively blended in the pursuits of the school; and what should be the organization of teachers, buildings, and equipment that will be most efficient in each case.

To attempt to solve all these problems with respect to all kinds of schools is impossible in one treatise. We are content to essay a solution of them in the case of primary schools for working-class boys, and especially for those boys who will enter artisan occupations. The first problems we shall discuss, because they are fundamental to all others, are those that centre round the boy himself. A training for future "work" cannot with advantage begin before the boy's physical and mental development will permit of his appreciating to some extent the need and value of a special training. It is little use forcing a boy prematurely into a specialized course. Education should, in her methods, follow the line of natural development. Up to a certain age utilitarian interests have little or no place in the child's mind. The child's interests do not stretch beyond his immediate environment. They do not range far into the future. Hence a specialized artisan type of education and school cannot be conceived in relation to pupils below the age at which the future stirs some inward desire. Below this age the education of all children should be one that is more or less common to all walks of life, and should be determined largely by the common characteristics of childhood.

Experience with boys up to the age of sixteen points to the conclusion that somewhere about the age of eleven—a little earlier with some, a little later with others—a change comes over the boy's outlook on himself and the world around him. Those acquainted with the pupils of Standards IV, V, and VI of our primary schools—boys from ten to thirteen years—know that the

pupils of the last class are more difficult to manage and to interest in school studies than those of the first. More tact and cajolery, sympathy and judicious firmness are required to oil the wheels of discipline, and, to change the metaphor, to mask the stern face of authority. This difference in the treatment required is an indication of a change in the character of the boy's development. The change, however, is rather one in the boy's attitude to things than any marked modification in the character of his external activities.

The boy of eight or nine years is intensely interested, or rather, we should say, attracted by, and absorbed in the sights and sounds and happenings around him. He watches, all eyes; he listens, all ears, to everything within the range of his senses. His limbs and fingers itch with the imitative and constructive impulses to engage in the work he sees others performing, and to experiment for himself where opportunity permits. This restless activity of the young boy has not the seriousness and the purposiveness of work. He is serious enough and earnest; but it is the seriousness of wholehearted play. He is irresponsibly venting his impulses in activity, largely for the very joy the activity itself brings. He is mainly unconscious of the self; and it is this very absence of self-feelings and self-consciousness that makes him so ingenuous, his play so wholehearted and earnest, and teaching him so refreshing.

The older boy of twelve or thirteen has quite different characteristics. He is less frank and natural, less playful, less absorbed by the things about him, and not so wholehearted in his impulses. He is beginning to be more serious, wilful, combative, secretive, and resentful of authority. To what is the marked difference in the characters due? The change, it seems to us, is due to the quickening in the older boy of the self impulses, the

first signs of dawning adolescence, when the consciousness of the self, its feelings and powers, is awakening to increased activity, to play an important and ever-increasing part in the development of the boy's individuality.

The rapid growth of the self impulses at this stage of the boy's development is seen to a marked degree in the swing of the boy's interests from the objective world to the subjective self. This change in his mental attitude is shown most strikingly in his play, in his relations to his companions, and in the choice of his reading.

To his companions, the boy of this age is self-assertive to the point of being quarrelsome, boastful, and vain. His way is always the right one, and everybody must follow it; he domineers to the utmost of his power, and is ready to assert his will with the force of his fists, by sullen obstinacy, or by outbursts of anger. Most people will recognize these as common characteristics of the undisciplined play of the playground and streets with boys of this age.

Self-respect, pride, and vanity are the chief self-feelings, and feed their strength on struggle, strife, rivalry, and competition. Naturally, then, we should expect to find the boy inclined to those combative forms of activity that emphasize the importance of his "self" in his own eyes and those of others. This is so, and to a marked degree. Becoming conscious of himself and his powers, and exaggerating their importance and value, the boy would force his own estimate of himself on his companions, and prove his worth and value before them in personal contests of every form. He desires to outdo them in every form of activity native to boys. He is masterful to the point of bullying, and loud in his conceited vanity. He is afraid of being thought weak, effeminate, and tied to anybody's apron-strings. He would have his companions believe that he is his own

master and capable of anything. Hence, he is open to any flattery, and is touched to the quick by sarcasm or a sneer. He can be dared into any foolhardiness or badness if the tempter but know the right thong with which to lash his pride and vanity. A scoff at his courage will stir him to reckless daring, a skit at his goodness to evil doing that he secretly loathes.

His games in a marked degree indicate his growing self-assertiveness. They are all games of strife and struggle in which he can show his mastery over others. He delights in nothing so much as catching an opponent, struggling and wrestling with him, overthrowing him and holding him at his mercy. In this the older boy is strikingly different from the younger. The younger boy of eight or nine years is absorbed in play, and, equally with the older, delights in physical activity, but he delights in it more for the pleasure the activity itself gives him. The older boy plays to win, to feed his self-feelings. Victory stimulates his vanity, and he exults in the sense of his own power, in the flattery of admiring friends, and in the crestfallen looks of defeated opponents. He shuns defeat and the chance of defeat as the greatest of evils. He is loath to enter a doubtful contest, preferring a war of loud boasting. He is tempted to win at all costs, which trait in his nature is the cause of the never-ending bickering of undisciplined street play.

The extreme self-assertiveness of this period of the boy's life is exemplified, too, in his hero worship. The pirate bully and the braggart adventurer are among his most admired heroes. The blatant self-assertion of these heroes, their rough mastery of men and events, and their boastful confidence in themselves appeal to him because they are akin to his own nature. Sad it is, but the meek, lowly, and humble find no place in his Valhalla of heroes.

The boy's attitude to his elders is marked by a similar

play of self-feelings and self-motives which, however, as is to be expected, do not exhibit themselves in the same way as in the boy's relations with his equals. His self-assertion shows itself in a more stubborn independence, in a desire to be responsible for himself and his own conduct, in a growing secrecy, and in a determination to have his "self" taken into account. He is up in arms at any word or action that ignores or suppresses the self. Compulsion is answered by grudging obedience, sullen obstinacy, or passionate resentment. Persuasion, or an appeal to reason, on the other hand, he approves of. They flatter his self-respect by tacitly admitting he is a power to be reckoned with. Hence, influence at this stage is a wiser and more effective mode of discipline than compulsion. He will readily adopt suggestions if left free to choose, but his growing self-respect demands the option. He is very open to praise, especially praise before others, but very touchy on the point of criticism. As has been said, sarcasm, a sneer, and a contemptuous reflection on his work cut him like a whip. How he will respond to them, whether by inward revolt or by renewed efforts to do better, depends largely on his temperament, on the person who utters the condemnation, the way it is said, and the publicity given to it. The teacher can easily work on his love of praise and desire to be first. Any form of activity, especially if it be competitive, by which he can shine in the public eye will stir him to strenuous effort, if he but see the chance of success. But he will not court the risk of defeat. Where defeat is certain, or very probable, he will treat the whole contest with contempt, as being unworthy of his prowess, and, if he engages in it, will brag of the deliberately intentional character of his failure.

Altogether, the boy at this stage is a more difficult and complex instrument for the educator to play on than

the young boy of nine or ten. To be won over to the side of goodness and work, he needs over him a hand exercising a wise authority that knows when and how to be resolute, and when and how to relax; a hand that can play on his feelings with a delicately firm touch and with understanding sympathy. Though more difficult to control than the younger boy, yet there are in him greater possibilities of good, as well as of evil. The crowd of new tendencies moving within him offers to the touch of the educator a wider range of feelings on which he can play. And because they are the feelings most closely bound up with the boy's individuality, they are strings which will vibrate with the greatest intensity and which will sound the most individual and characteristic notes. More than in any previous period of his life, the boy at this age is developing a marked individuality of his own. Indeed, it may be said, that the forming of that individuality is the characteristic feature of this time of life, and, hence, the training of that individuality towards a strong and capable manhood should be the distinctive problem for the teacher and school at this stage in the boy's development.

From eleven to sixteen years of age, the boy is too intellectually immature to assert himself strongly in intellectual activity, and his self-feelings are naturally not exhibited to their fullest extent and intensity in the different forms of intellectual rivalry. The period of approaching manhood is, perhaps, more peculiarly the stage of intellectual contest. The debating society is an institution that appeals more to young men in early manhood than to boys in school. The boy from eleven to sixteen years is still in that stage when the physical impulses are most active, and the practical and concrete appeal more strongly than do the speculative and abstract. Hence, it is in these fields rather than in that of the intellectual that his self-assertion is most freely exercised,

his pride, vanity and boastfulness most exhibited, and rivalry and struggle most keen. Into games and practical occupations requiring physical strength and skill he will throw himself wholeheartedly, and will give time, energy, and pains, to making himself efficient in them. He is but mildly stimulated by the intellectual conquests of the classroom, although the teacher's praise or a position in class are feathers in his cap, though not great ones; but to be cock of the street, sergeant of a scout patrol, corporal of a boys' brigade, or captain of a football team is a position to be envied, and, if possible, to be won. His hero-worship at this age emphasizes this nature of his. The heroes he admires are all men of great physical strength, courage, and daring, and efficient in all the physical arts of the soldier and adventurer. Beowulf, Hereward, Odysseus are his fancy rather than Pitt, Howard, Gladstone, or even Gordon. Not that he does not admire intellectual gifts, but they must be of the practical order. The cunning of Odysseus, the craft of Hereward, the strategy of Napoleon, the cuteness of a Sherlock Holmes are keenly appreciated, and in his games and contests he places skill and head-work above mere brute strength.

In the above brief sketch of the characteristics of the boy, it has been our object to show that the key-note to the boy's development from the age of eleven to sixteen is the marked quickening of the self-feelings giving rise to a more distinct individuality, which is most spontaneously asserted in the spheres of the practical and physical. The education of the boy during this period, then, must centre round these new forces, and the problems of the school must be: How should these quickening self-forces be reckoned with, and to what end and by what means should they be trained? It is certain they can be neither ignored nor suppressed. To ignore is to leave

the development of the heart of the boy's individuality to mere chance. To suppress, or try to suppress, is to stunt or warp the essence of the boy's nature, and to place oneself athwart the whole line of his natural development. A wise education will welcome them as new forces, strong for good if wisely trained, and from which manly, hardy, and virile manhood can be fashioned, but equally strong for bad if given a wrong bent. As they are the key-note to the boy's development, the occupations, methods, and discipline of the school must concentrate on their full growth and right training. These should give full scope for the exercise of the boy's individuality. Through them he must assert himself in struggle, competition, and rivalry with his companions, and especially so in the spheres of the physical and practical. The discipline of the school should not cramp the boy's self. It should be sufficiently loose to give the self room to expand, and to feel its way to a solid sense of responsibility. Yet, too great an individualism is to be avoided. Strong independence and a keen fighting spirit are admirable qualities, but they make a more perfect manhood when blended with the spirit of chivalry, honour, and loyalty. But the check to individualism should not be by a suppression of the competitive self, but by the cultivation of it to the full in an atmosphere of self-restraint and self-discipline, in which the social impulses are encouraged and the claims of loyalty, chivalry, and honour are urged equally with those of the boy's egoistic nature.

The problem of boys' education at this period is further complicated by the different home environments of the working-class boy and of the boy of a higher social grade. These different environments cause, too, a difference in the way the individuality expresses itself in the two kinds of boys. In the working-class home,

work and wages are the main consideration. Earning the daily bread is an ever-present family problem, and one of the most pressing. Culture, except of an elementary order, is seldom thought of, and the questions of choosing a trade or craft for the boy and definitely preparing him for it, if entertained at all, give way before the urgent need of adding to the family income. Thus, partly by the pressure of home circumstances, partly owing to the parents' ignorance, lack of culture and indifference, the working-class boy has his mind quite early turned to the question of work and wages. Naturally, he sees the outlet for his individuality, the way to independence and freedom, by the path of leaving school and taking up work. The home gives few or no other outlets for personal ambition. Culture, hobbies, a preparation for a higher walk of life are all closed to him. To work and to earn money give a free and almost the only opportunity for independence, pride, and vanity to assert themselves, and, at the same time, provide for his physical and practical tendencies ample scope.

In the home of higher social grade adding to the family income is not a necessity. The problem rather turns on the best and most fitting walk in life for the boy to enter, and on the business or profession that will open up the best chances of improvement and success. The boy's individuality, thus, finds its outlet rather in ambition for the future than in the desire to leave school at once and begin work. At the same time, the demand for immediate opportunities for asserting the self are given in the hobbies that are almost always encouraged in a better-class home. With the boy of the slums, as we have said, the licence of the streets and the freedom of work offer the most tempting road to independence and free self-expression, a licence and freedom which are most dangerous if the environment be a vicious one.

The particular trend of the working-class boy's personal ambitions is, thus, seen to be the result of the narrowness of the home life and ideals, which force the boy to develop his individuality on the line dictated by work and wages. It might be expected that the school influence would counteract to some extent this narrowing tendency. It is to be feared, however, that, instead, the school indirectly and inadvertently accentuates the home influence. Its bookish curriculum and mechanical discipline drive the boy to find an outlet for his growing self-impulses and his practical tendencies outside the school. Neither the traditional school occupations nor the traditional primary school discipline will encourage the free expression of the self-impulses either in intellectual contests and work or in practical and physical directions. Silence, passivity, monotony, automatism are too often the notes of primary school life. The primary school is, thus, out of touch with the line of the boy's natural development. It ignores the boy's ambitions for the future. The boy with his growing sense of independence and impulse to self-assertion is not content to accept ideals alien to his whole nature and needs. Hence follows the natural revolt of the boy against the school, a revolt which is a characteristic feature of the tone in the upper classes of a primary school. Did the school but provide in its life and pursuits means by which the boy could satisfy his nature, it would have a stronger influence and hold on him. The economic pressure of the home would still remain, but the school would then act as a counteracting force inspiring the boy to a higher ideal of industry, skill and culture, training him in habits of honest work, and arousing in the more intelligent an ambition to advance to responsible positions in their craft. As at present constituted, the influence of the school tends to drive its pupils into the streets and

workshops at the earliest possible moment the state permits with an intense distaste for the school and all for which it stands.

The primary school, then, has a very special task to perform with pupils aged from eleven to fourteen, a task requiring a curriculum, methods, and discipline different from those suitable to the education of younger pupils. To effect its special aims thoroughly, such an education demands a building, organization, and staff separate from those for younger pupils. The problem of training the older boy is as different from that of educating the younger boy as is this latter from that of educating the infant. It is recognized that the infant should have a separate building with an organization, pursuits, and tone peculiar to itself. So, too, should the older boy. So long as the older pupils remain in the same building and under the same disciplinary atmosphere as the younger pupils, and pursuing school tasks similar to, though slightly more advanced than, theirs, so long will their special needs and natures fail to receive the treatment they require. Only by the institution of a separate senior school can there be secured a sufficient break with the curriculum, methods, and discipline traditional in the primary school of to-day, which, it must be owned, are successful up to a certain age, but are out of touch with the natures and needs of those pupils who are about to pass into industrial life and should be beginning to prepare with some seriousness and definiteness for a life beyond the school.

The whole period of primary education should, then, be divided into three stages; the Kindergarten, the Junior School, and the Senior School, each having its own special problems and each leading to, and preparing its pupils for, the stage beyond it. The junior school should give the fundamental instruments of learning in an

efficient instruction in reading, writing, elementary arithmetic, and drawing, so that the pupils could enter the senior school and use these arts in the acquirement and expression of knowledge. The senior school should —as an important part of its work—prepare for a future life of industry by a wide range of physical and practical activities; and its occupations, methods, and discipline should be such as to cultivate a high ideal of manual industry, a pride in skilled work, a keen fighting spirit, habits of independent work and initiative, and a spirit of fair play, honour, and loyalty.

A separate senior school in which the training was designed to prepare the pupils for a life of industry would have a beneficial effect on the tone, not only of the pupils, but of the staff. The staff, only having to deal with older pupils, could, as in the case of a kindergarten staff, give particular attention to the special problems of the senior school and could develop a tone and methods suitable to its aims. The head master, concentrating his attention on an organization of staff, pupils, and curriculum for the purpose of securing a thoroughly practical education, could suit his curriculum to the special needs of the district, and could keep in touch with the requirements of employers of labour. There is no reason, indeed, why such a school should not have its own Juvenile Employment Bureau in the hands of its own head master. On the pupils the moral effect would be no less great. The break from the routine and tone of the junior school, and the entrance into the freer, more independent, responsible and practical atmosphere of the senior school, at a time when the self-impulses are beginning to awaken a sense of independence and responsibility, would give an impetus to the boy's development by leading him to view the school and its work with greater seriousness. The practical character of a school

training, bearing definitely on industrial life, would cause him to recognize and appreciate the value of its work and discipline. School would cease to be the distasteful place it has become. It would be something he would feel to be worth attending; and, when the boy leaves the primary school for the workshop, the appreciation of school thus acquired would be seen in a better attendance at continuation schools, if these, in their turn, maintained the practical ideal and cultivated an atmosphere favourable to independence and responsibility.

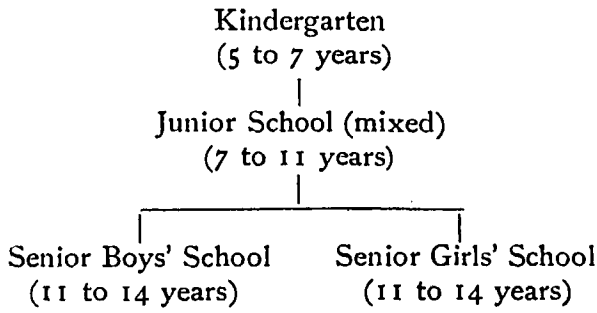
Many other facts support the conclusion that the school life of boys—and of girls too—should undergo a marked change about the age of eleven. With young children of eight or nine years it is generally found that women teachers succeed better than do men. It is not suggested that men are not capable of managing small boys. Many men not only like teaching them, but show considerable aptitude in dealing with them wisely. On the whole, however, men are more successful with boys over twelve, and women with boys under ten, which points to the conclusion that about the age of eleven there comes some marked change in the nature of the boy.

Again, young boys and girls of nine and ten years can, without difficulty, be taught together. There is, of course, a difference in temperament and tendencies between them, but the difference is not so great or of such a kind that different modes of teaching and management are necessary. With boys and girls over twelve the case is very different. The boy of twelve resents female constraint and looks to men for his ideals of manly virtue and of manhood's occupations. Such a result is the natural outcome of the quickening of the self-impulses at this age. As the feelings and consciousness of self grow in intensity and definiteness, his thoughts and feelings about himself are reflected, not in the sympathy and

affection of woman, but in the strength and hardness of man. To his mother the boy turns for affection, sympathy and encouragement, but it is to his father or elder brother that he looks for his ideals of life and for guidance and help in attaining them.

It is certain that after the age of eleven boys and girls begin to diverge widely in physical characteristics, in interests, in temperament, and in character. Boys become more intensely boys, and girls more distinctively girls. The former need the firmer and wiser discipline of men, the latter the more discerning eye of women. Men cannot train girls of twelve and thirteen with sufficient firmness. They are too soft-hearted and too open to the influence of feminine ways. Women cannot hold boys to their work with sufficient determination, nor relax and tighten the reins of discipline with that insight into a boy's nature that a man has. Thus, while there is little harm in mixed classes for young children, after the age of eleven boys and girls should be taught separately. The boy should feel around him a strong manly tone. He should be disciplined with manly strength and with man's insight into boy nature. The personality of his teacher and the literature he reads should reveal to him the manly ideal, and his school occupations should bear on manhood's pursuits and encourage those physical, intellectual, moral, and social characteristics that are involved in the term manhood. The girl, on the other hand, should have reflected in her teacher, in the literature she reads, and in the tone of the discipline, the characteristics peculiar to womanliness. The occupations of the girl's school should train her for the special vocation of woman. As handicrafts, practical measurements, and manly games give the essentially manly note to a boys' school, so various forms of housecraft and girls' games should give the note of womanliness to a girls' school.

The primary school organization should, then, be as follows:—



The break in the school period at eleven years of age would solve in a satisfactory manner other pressing problems. Up to eleven years of age the education of all pupils, both in primary and in secondary schools, follows the same general lines. The pupils are learning the elements of reading, writing, arithmetic, and drawing, preparatory to undertaking the more serious work in the higher classes. The important work in a primary school is done in Standards V, VI, and VII, and in a secondary school in the last four years, and it is in these classes that the work of the two types of school diverges most widely. This is as it should be. With pupils over eleven each type of school, while giving as much general intellectual culture as possible, should take into account the future careers of its pupils. Schools cannot, of course, prepare definitely for particular trades or professions, but they can take notice of broad differences, such as those between artisans and clerks. Grouping the walks of life broadly, we find that primary school pupils mainly become unskilled labourers, artisans, clerks, and small traders, and that secondary school pupils generally enter the higher ranks of industry and commerce and, after a university course, one of the professions.

This diversity of practical aim can roughly be met by organizing the following types of school:—

1. Primary artisan schools for pupils entering the unskilled and skilled manual occupations.

2. Primary schools with a commercial bias for pupils who will become clerks or small traders.

3. Secondary schools having three sides:—

(*a*) A commercial side for pupils desiring to enter commercial life.

(*b*) A technical or industrial side for pupils desiring to enter industry.

(*c*) A side preparatory to the university for those desiring to enter professional life.

The organization of schools and of the curriculum and scholars of each school should permit of the transference of pupils from the primary to the secondary with the least dislocation of the work in each school. In most towns where scholarship arrangements exist for a transference of primary pupils to secondary schools the pupils complete Standard VI in the primary school before entering the secondary school. This arrangement causes a great dislocation in the work of each school. In many towns it has caused the Standard VII to be practically non-existent, Standard VI becoming to all intents and purposes the climax of the school. The teaching in Standard VI is concentrated not on the needs of the majority of the pupils, but on the scholarship examination for which a small minority enter. The majority is thus sacrificed to a minority. The school curriculum and methods are organized on the principle not of a preparation for life, but on the principle that a primary school is preparatory to a secondary school and, as far as municipal secondary schools are concerned, should act as a feeding ground for it. The result on the primary school pupils who remain in the school is, as a rule,

fatal. After the scholarship examination is over the school has no purpose, no climax, no definite aim. The pupils potter about at all kinds of odds and ends until the leaving age brings a welcome relief. The whole system brings out in a striking way the utter purposelessness of the school curriculum and its dissociation from the future needs of the vast majority of its pupils.

The transference at the age of twelve or thirteen no less interferes with the work of the secondary school. Some dozen to twenty pupils from the primary schools are thrown into one of the lower forms of the school and find themselves in almost every subject at a stage different from that of the regular secondary pupil. As a rule, twelve months' time is spent—should we not say wasted?—in a transition class before the influx can be absorbed into the main onward trend of the school work.

The whole trouble arises from a misconception as to the function of the primary school. Instituted before the subject of primary education had received any serious attention, primary schools followed the secondary school tradition of a literary culture founded on reading and writing, instead of working out their own salvation according to the needs of the mass of the population. This misconception led to education being understood as consisting of two grades, the primary and the secondary, one preparatory to the other. Such a view of education is fatal to any satisfactory solution of the primary school problem. The two kinds of schools stand for two different types of life, requiring different degrees and kinds of intellectual and physical attainments. As has been observed, the primary school boy, as a rule, enters some branch of manual labour, or the lower ranks of trade or commerce. The secondary school boy seeks to enter the higher ranks of commerce, trade, or industry, or one

of the professions. The two types, besides signifying different economic ideals, stand for different degrees of mental culture and kinds of manners and behaviour. A secondary school, then, is not a stage beyond the primary, nor a second story to it; it is a different kind from it. Especially is the difference marked in a comparison of the work that the upper classes of the one and the upper forms of the other should be engaged in. Although, as has been pointed out, the work of the lower forms and classes in both will be on much the same lines.

The transference of pupils from the primary to the secondary school should take place before the divergence is great. Every year of delay cripples the primary boy's chance of benefiting fully by the life and instruction of the secondary school, and at the same time increases the disorganization of the secondary school arrangements. The most convenient moment for the transference would be when the primary boy finished the junior school course at eleven years. Those transferred would be the intellectual pick of the junior school, and should, therefore, have received a thorough grounding in the elements of reading, writing, arithmetic, and drawing. They would with little trouble take up the work of the second or third form of the secondary school.

The age of eleven, then, would be a crucial point in the career of the primary school boy. At this age his parents would have the chance of sending him to:—

1. A secondary school, to enter ultimately the commercial, industrial, or professional side.
2. A primary commercial school.
3. A primary artisan school.

The boy, then, from eleven years onward would pursue a course of a definite character, leading in a definite way to one or other of the main openings to earning a livelihood.

It might naturally be asked why the differentiation according to occupations should be carried out by means of "sides" in the case of the secondary school and by separate schools in the case of the primary. The number of primary and of secondary schools needed in a town gives the clue to the answer. Two and sometimes three primary schools are required for one district, whereas one secondary school is often enough to serve the needs of the whole town. Hence, economy decides that the educational bias according to future career in the secondary school must often be made within the one school organization; whereas, for efficiency, each primary school can specialize according to the needs of the district. If more than one secondary school for boys exist in a town it would be a wise economy for each to specialize in its own line. Thus, there might be in a town an industrial secondary, a commercial secondary, and a secondary school giving a general culture, each sending some of its pupils on to the university to take advantage of the highest training in arts, science, or technology before entering the professions, industry, or commerce.

If a parent living in an artisan district wished his boy to receive a trade or commercial education, he would have to select a school in a part of the town where the needs demanded such a school. It is no hardship to ask a boy of eleven to walk one or even two miles to school. Children in the country often walk much farther to school, and the pupils of a secondary school in a large town do not, as a rule, live within a radius of one mile, or even two, of the school. It is more than probable that within a radius of a mile from any point of a town there will be found a need for both an artisan and a commercial primary school.

CHAPTER III.

THE DISCIPLINE AND INSTRUCTION OF THE PRIMARY ARTISAN SCHOOL.

OUR standpoint, throughout, with respect to the artisan school has been that in its instruction and training it should face the realities of artisan life. In that life the practical stands out as the most economically necessary and, therefore, as an essential to free manhood and as that aspect of the future to which the ambition of the boy in early adolescence is turned. It would, however, be a poor life and education that banged the door on other activities which, though not so economically necessary, yet enter into a generous conception of a free and intelligent manhood. Citizenship and the world of thought and art are the heritage of all. They should be as much realities in the artisan's life as is his practical work. A manhood without them would be a very limited, confined, and dependent thing. There can be a manhood without culture and without the sense of citizenship, but it is a rude, barbaric, material manhood at the mercy of the lower passions and material necessities. On the other hand, there can be culture without manhood, but it is a poor, contemptible thing. The finest product of education and of civilization is the manhood which fully, freely and intelligently spends itself not only in the practical work of the world, but also in the claims of citizenship, and in conquering the world of thought and art. In thus giving full vent to his practical, social, and

intellectual nature a man finds individual, social, and intellectual freedom. Shut off from the wider life by lack of desire or want of opportunity, he is a slave to his own needs and impulses. Hence education, though performing a necessary duty in leading the youth towards an intelligent and skilled practical life, fulfils its highest function only when it inspires the boy to the pursuit of knowledge and beauty for the pleasure they bring and expands his social nature to take an active, intelligent, and appreciative part in national activities.

The primary school, however, can do little more than set the boy on the first rung of the upward ladder. To give all the instruction necessary for adult life before the age of fourteen is not desirable, nor even possible. The boy's education at fourteen is little more than begun, for there have been only three short years of serious work. Before the age of eleven instruction has been largely play, and but unconsciously—as far as the boy is concerned—educative. It is only when personal desire and ambition are present to aid the external instruments of instruction that any serious direction can be given to the boy's learning. Only with the awakening of a sense of responsibility and independence can education become an inner conscious force. It may well be asked, then, "What can instruction do in three short years?" Moreover, the boy at fourteen has not attained the full capacity of his development. Full ten years of active growth are ahead of him before his physical, intellectual, social, and moral natures will have all their tendencies awakened, and it is the direction given to these tendencies during the years immediately preceding manhood, rather than the course given to the immature tendencies of early youth, that will determine the trend of life during manhood. Hence, all that primary instruction can do, up to the age of fourteen, is to develop

the boy's youthful powers of mind and body to the utmost of their fourteen-year-old capacity in those directions that will lead him to enter into the duties and activities of youth with zest and ability. We should, then, view with little favour proposals to give instruction in subjects that are only appropriate for a riper intelligence. The theories of hygiene and of morals are examples of such subjects. The work of the primary school with respect to morals and hygiene is to lay the foundation of healthy living in habits and feelings rather than in an intellectual insight into theory.

The limitations of primary school education are so clearly recognized by some that they urge the necessity of extending primary education beyond the age of fourteen to fifteen, and sixteen has even been suggested. This appeal implies that the school has to give the boy his main preparation for life's duties, which is to exaggerate both the function and the possibilities of the school. Schooling is only one form of education, and often not the wisest and more fruitful form, as in those cases where the tone and pursuits of the schools are out of touch with life's realities. Many people find it difficult to imagine an education apart from the school. To those we would urge that the home, the workshops of employers, social and recreative pursuits are as important instruments in determining the boy's development as is the school, and are often more effective. The wider range and freer pursuit of those activities that are possible to youths after schooldays are over, are valuable educational instruments for training responsibility.

Especially would we urge that the life and pursuits of the workshop are educative. Employers demand of their workpeople, even of their boy workers, effort and success, and their measures of discipline are severer than those of the home and school. This places on the boy

a responsibility for his work that is a stage beyond what is usual in the school or home. In a works, too, the boy forms part of an organization of industry that demands of him co-operation with others in the general lines of the industry, and independent initiative in the narrower details. It is because of this appeal to responsibility, to independent initiative, and to loyal co-operation, that we claim for practical employment a considerable educative value apart from its development of physical skill and practical judgment on the lines of the boy's future occupation.

The evils resulting from boys' entering work at the early age of fourteen are not those of working for wages and the imposition of responsibility. These are all to the good. The evil arises from the too great amount of time and energy the work absorbs, and from the unhygienic conditions under which it is frequently carried on. Frequently the day's labour leaves the boy mentally and physically incapable of any pursuit beyond relaxation. Juvenile employment, then, though often resulting in harm, may not, and need not, be harmful. The first reform needed in organizing the educational instruments for the youth after his primary schooldays are over is not so much to raise the primary school leaving age as to institute a legislative control over the kind, conditions, and amount of boy labour so that it may be made educative, and so that time may be given for the boy to engage in recreative and social activities and undertake instruction of a higher practical character and a wider intellectual nature.

The education of the primary artisan school is, then, but a part of, or a stage in, a wider education, and its work consists in expanding and disciplining the powers of early adolescence to a point at which the workshops, private and social life, and educative institutions for youths can carry forward their development in the

direction of practical ability, citizenship, and culture. The development of the self-feelings during early adolescence, we have seen, makes it not only permissible, but necessary, to place on the boy himself some small measure of responsibility for his own learning, and of independence in the work of carrying it on. These characteristics should become more and more evident in the educative instruction after schooldays are over. The youth should feel his own responsibility for himself and his future, and much of the learning should be independent self-learning.

Responsibility, necessarily, cannot be wholly the boy's. His parents, his employers, and the education authorities must share it with him since, after all, he is but a boy in whom ambition and purpose are not steady, whose impulses are not under firm control, and whose intelligence and experiences are not ripe enough to deal alone with the opportunities and temptations too great a freedom often offers. His parents have not only a natural right, but also a natural responsibility. His employers, since they engage his labour, should take some responsibility for making that labour efficient. They have responsibilities to their workboys as well as rights over them, and their educative responsibility is to provide efficiently for the boys' practical education. The education authorities represent society at large, which has a responsibility for its younger members. Parents, employers and education authorities, however, must recognize that they cannot use compulsion with boys of this age with any advantage. The boy's self-consciousness and his desire for independence have developed sufficiently for him to assert himself successfully against compulsion by sullenness, obstinacy, or passion. Hence these forces must be won for, not forced into, learning. They cannot be ignored or suppressed if instruction is to be of any avail.

It is doubtful, then, if compulsory attendance at continuation schools would lead to a real advance in the education of artisans, unless the appreciation of education and of culture among the working classes was much more wide-spread and intense than it is at present. Before compulsion is attempted every legitimate inducement in the form of physical and social recreation should be generously used to *attract* youths within the folds of the continuation schools, and every form of healthy inspiration, rivalry, and competition, and of appeals to ambition should be used on him when there to awaken desire for advancement and to concentrate ambition on a definite course of study. Appreciation of education, goodwill towards higher skill and culture, and a sense of responsibility in the boy for his own future are motive powers that will drive the wheels of education more quickly and smoothly than will compulsion. Unfortunately for the future outlook educational administration is becoming more and more bureaucratic, and it is to be feared that methods of compulsion will be preferred to those of inducement. Bureaucracy has no soul; it is only a machine. Its strength lies in its power to organize external forces; its weakness in its neglect of those personal influences that cannot be forced into a cast-iron system, but are, on that account perhaps, the most effective in the development of youth.

The question of self-learning opens up the whole problem of the methods of school discipline and instruction. The methods of education are often described as "leading the pupil" to this, that, and the other. Often, it is true, the leading becomes driving, but the boy is hardly ever free from leading or driving reins. He seldom stands on his own feet and walks for himself. Surely, in whatever directions instruction develops the boy, it should train in him some power to advance in

those directions by his own efforts and will. As an essential factor in education after schooldays are over, the power of self-learning should be seriously cultivated during schooldays. Instruction should be carried on in such a way as to cultivate (1) the desire and ambition for improvement and (2) some power of independent effort.

It is feared that primary school instruction frequently fails to attain either of these results. Its teaching, especially in the higher classes, is content to fill the pupils' minds with information on a multitude of useful and useless topics and to drive these home by thorough memorizing. Periodically the boy's mind is examined to see if its contents have been lost or mislaid, and too often it is found that his mind is rather "like the magazine of a pawnbroker's shop, stored with goods of every description, but so cumbrously piled together and in such disorganization that the owner can never lay his hands on any one article at the moment he has occasion to use it." Knowledge, it is thought, is a valuable possession which will sometime in the future be able to realize itself in intelligent thought and effective action. So give the boy useful knowledge about business and he will in the future have power over business. Give him knowledge about morals and he will have the power to be good. Give him knowledge about health and he will have power to live a healthy life. Give a girl knowledge about domestic matters and she will have power to manage a home. It needs little examination to expose the futility of such knowledge about things. To know about without the power to use, is not only possible but common. To know about without the will to use, is one of the saddest features of modern education. Much of the failure in life is not from want of information, but from lack of power or will.

Stores of information about things do not constitute

knowledge in any real sense of the term. They have in them no vital principle of power or growth. The real living stream of the boy's mental life flows on more or less uninfluenced by the flood of information that instruction pours in, and which, forming stagnant pools, evaporates and fades away when the artificial source comes to an end, leaving the main stream of mental life little the richer or stronger. The main stream of mental life is fed from a more vital source. It issues from the needs, impulses, interests, desires, purposes, and ambitions of the boy which impel him continuously to a never-ending series of acts to know his environment and to master it.

By this activity he is constantly receiving impressions from his environment and reacting to them in thought and action of a more or less effective kind. Thus he gains an ever-widening and increasingly effective experience of how to deal with his environment in order to satisfy his wants and desires. Such experience is knowledge in the only true sense of the term. It constitutes the boy's power to deal with the things around him, to think about them, and to act on them with reference to some purpose. Such power alone is knowledge.

Knowledge, then, is a power, not a possession. It is like the merchant's capital rather than the miser's store of gold: the one invested in commerce and industry is a source of increase and a centre of activity; the other, hoarded in secret places, is powerless for good. It is dynamic, not static. It is the power to control one's life and actions by thought. Its increase is not measured by accumulations of facts and rules which may add nothing to power and often only paralyse it. Its development is marked by the wider range of experience over which the mind has control, by the power to analyse more complex situations, and by the greater distinctness and clearness with which experience is grasped. Its value in life is

seen in the greater economy and efficiency and in the wider range of action. It has in it the seeds of its own growth, for its vitality is derived from those impulsive forces of desire and ambition, and of curiosity and action that impel the mind to a wider and wider range of inquiry and to an increasing efficiency in conduct. Such a power school instruction must give if it is to be fruitful in influencing the boy's future life.

The environment and activities of the school add to the boy's experience a number of subsidiary streams which, if they are to be effective as power, should broaden and strengthen the main stream of mental life. They must not flow separately from it, feeding on different kinds of material, deriving their power from different sets of impulses, expressing themselves in different forms of activity, and directing themselves to different ends. If school instruction thus separates itself from the out-of-school realities of the boy, a dual mental life will be set up; one side confined to school experiences and purposes more or less distasteful, the other, distinct from it, concerned with those problems which the boy feels to be real and interesting. The gulf between the two lives, the powerlessness of the school instruction over his out-of-school affairs, and its unreality will become more manifest to the boy when, by the growth of his sense of independence, his thoughts are turned to work. From the moment the boy feels that school activities are worthless and unreal to him, whether they be so in reality or not, school instruction will fail to have any power except to disgust. It finds no source of vitality in the boy's nature.

It may be argued that, from the circumstances of the school, its activities must be largely of an artificial character, as in the cases of formal physical drill and many of the arithmetical problems usual in school-work. This is no

doubt true if by school is meant school buildings. Our whole contention throughout, however, has been that the classroom cannot offer opportunities for the practical and physical activities that are necessary to the development of the boy's abilities on practical and healthy lines and that make up a large part of out-of-school existence. The classroom activities must be to some extent formal and scholastic, and can neither be assimilated fully to out-of-school experience, nor train for an out-of-school manhood. This, however, is no argument for confining the school-work to such artificial devices. Rather is it an argument for broadening the whole conception of what constitutes school instruction so as to embrace something very much wider than can be carried on within the four walls of a classroom. It is time teachers rid their minds of the narrow conception that the school means a building. It is a company of scholars under discipline, and wherever the company may be, in the classroom or workshop, in the gymnasium or playground, in the fields of the country or the streets of a town, round an old abbey or castle, if they are *under discipline* there is the school. Only by widening the conception of school so as to include activities that can be performed out of the classroom and out of the school buildings can the basis of school instruction be made sufficiently wide to find numerous points of contact with the main stream of the boys' interests and experience.

The root conception of school is disciplined activity; and by discipline we do not mean necessarily the direct discipline of the teacher's voice and eye. A school can only train self-discipline and self-learning if it gives sufficient opportunities for the exercise of disciplined freedom. It is not enough for the teacher to say the boy has freedom out of school, in his own life. This is a freedom without directive inspiration and organization. The school

should supply both inspiration and organization to direct the boys' interests out of school, by the formation of reading circles, ramblers' clubs, sports clubs, scout patrols, and such like societies. These institutions can be kept on a sound and healthy basis and in a flourishing condition only if they have behind them the interest and organizing power of the teachers of a school. It is as much by the disciplined activity away from the school classroom and under the influence of school societies as by the formal and more artificial tasks performed under the teacher's eye that real power to deal with things will be cultivated.

The school, then, aims at disciplined activity, but the discipline should be quite other than that of a monotonous and unintelligent drudgery and of a cold, mechanical, external government. Discipline is not forcing a boy to do what he doesn't want to do, or to learn what he thinks useless and finds uninteresting, in the hopes that in the long run force and time will bring him to the instructor's way of looking at things. Indeed, it is the very opposite of forcing; it is inducing the boy to enter willingly, cheerfully, and heartily into the doing of those things and the learning of those things that are valuable and useful.

Nor is there any lack of inner forces in the boy's nature to which to appeal. The normal healthy boy is brimful of irrepressible forces that are at every moment seeking something or somebody to be the object of their activity, and which forces are compelling him continually to every form of mental and physical effort. He is curious about things and inquisitive as to the meaning of people's actions. He wants to know the what, the how, and the why of every object and event that is strange and new. He longs to get his hands on things, to pick them up and do something with them, even to pull them to pieces and break them. He imitates the actions of others and acts on their suggestions often just to see what it is like;

at other times he experiments with things "on his own" with a ready and fanciful imagination. In his relations with others he is moved by the contrary impulses of sympathy and egoism. He does not like to stand alone in thought, feeling, or action. He likes to feel behind him the support of the crowd, to receive their approbation and praise. On the other hand, his egoism leads him to fight for his own hand in competition and to "go one better" in emulation. Weakness arouses his sense of mastery and he treats it with contempt rather than with pity. Strength and authority receive his respect and, when exercised in a friendly spirit, his admiration and willing obedience. To what he feels to be manly he gives an open-hearted and reverential hero-worship.

The boy is thus no passive organism, no *tabula rasa* waiting to receive the imprint of external forces. He is a compound of propulsive and often explosive forces that impel him to go out to the world around him to discover it and know it through his senses and his intelligence, to master it with his physical activity and his will, to co-operate with those people that attract him, and to assert his own strength in competition and strife. These forces are the raw material that education has to cherish, strengthen and refine, to turn into powers strong in their innate impulsiveness, yet fine, sensitive, and discriminating in their action.

The first duty of education in cherishing the impulsive energy of childhood and youth is to prevent the waste of innate power. Nature with bountiful hands has given to each one of us much possibility of power of thought, of appreciation, and of action. Human hands, however, too often withhold the opportunity necessary for right development, and the innate energy of boyhood is guided into evil channels or, dissipating itself in desultory activity, it runs to seed and is wasted. For example, the boy is

brimming over with redundant physical energy and ready to find a vent for it in games, in play, in mischief, in struggling and fighting with his companions, in making things, and in a thousand and one ways. These physical impulses—cherished, strengthened, and refined by games that develop strength and skill, and the spirit of honour and loyalty, and by contests that call out his initiative, ingenuity, self-reliance, and fighting spirit—would make the physical and moral backbone of England's manhood: but, stifled in the slums, courts, and alleys of our manufacturing towns, and neglected by the bookish desk regime of the modern school, this priceless potentiality of national strength is wasted, and dissipating itself in street mischief, it degenerates to produce the hooligan and street loafer, or, altogether suppressed, the narrow-chested, undersized, and dispirited worker of the factory.

Again, notice the hero-worship which animates the boy of twelve to sixteen years, and which is running to waste in a dozen perverted channels. The boy admires strength, courage, pluck, grit, and skill. By healthy literature and historical stories, and by manly games and contests played and fought in an atmosphere of keen strife and chivalrous fair play, such a spring of manly tendencies would pour forth a fountain of hardy virtues that would do much to strengthen and sweeten the moral spirit of the age. Left to run their own course amid a crowd of evil influences this hero-worship and admiration of strength take many warped, ill-shapen forms. The bully and braggadocio, the pirate captain and robber chief, even at times the expert pickpocket and cracksman become too often the heroes of the young boy. Such perverted admiration is all the sadder when one reflects that the intensity of admiration for evil might, under healthier circumstances, have been an equally intense admiration for good.

The organization and instruction of the school should aim at strengthening and refining every important group of impulses of the boy's nature. Every potentiality of body and mind, of thought, feeling, and action, should be realized in actual power valuable for practical, social, and individual life, by means of healthy, active, manly pursuits. To learn by heart, even to have knowledge and understanding, is but one part of the power needed to live. To be strong in physical energy, skilful of body, honest in work, hardy in spirit, courageous in endeavour, clean in thought, loyal in co-operation, are much more vital to the individual welfare and the welfare of the nation. The nation cannot afford to leave to chance, to the perverted influence of the streets and cheap literature, and to the somewhat narrow traditions of the working-class homes the development of the innate impulses that have in them immense possibilities of national strength. To do so is to waste the main source of the nation's strength, of body, industrial skill, and hardy manhood.

The innate impulses are many, and can be arranged in opposed groups. The impulses of attraction stand against those of repulsion, imitation against originality, self-assertion against self-effacement, competition against co-operation, egoism against altruism. The true line of development is towards a harmonious combination of opposed impulses, so that each acts rather as the complement than as the antagonist of the other. Such complementary action is exhibited when the fear of evil aids the love of good, when the formation of habit acts as the stable basis for progress by initiative, and when, as in a game of football, competition helps co-operation in a rivalry which aims at doing the most and best for the common welfare. Left to themselves, however, the complementary impulses fail to combine in harmonious unity. There is often conflict, and the weaker are sup-

pressed, leaving the stronger to develop and form a one-sided, ill-balanced character.

Moreover, in their action the impulses are flighty and unsteady, and even in boyhood are often blindly expressive of feeling and uncontrolled by reason. Hence, when left to his own guidance, the boy often dissipates his energy impulsively over a number of more or less trivial pursuits that successively attract his interest, and he carries through nothing with persistent thoroughness and intelligent thought. He thus fails to gain by his activity increased power in thought, or in skill, or in industry.

Instruction, then, while gaining its hold on the boy's energies by an appeal to his innate curiosity, love of action and individual and social tendencies, should guide these forces in directions that will lead to the development of valuable power, and should stimulate the boy to a thorough, persistent, and efficient performance of every pursuit undertaken. School learning should be neither play nor amusement. Play and amusement have their place in school as they have their place in life; but in the main school instruction should be a discipline. It should be regulative of innate impulses and formative of purpose and power. It should seek to turn the flighty, unsteady, conflicting, and ineffective impulses of childhood and youth into the steady, persistent, and patient forces of intelligent desire and purpose. Further, it should broaden and deepen these maturer springs of conduct into ideals for practical, national and individual life, and cultivate the power of mind and body necessary for their effective attainment.

The discipline of compulsion, however, cannot attain this end, for compulsion represses all activity save resentment, loathing, and the inner rebellion that springs from fear. Compulsion can make the outer being conform in a reluctant performance, but cannot breathe into the soul

any life-giving spirit by which alone the inner fires of desire and purpose are set burning with a steady flame. Methods of repression are simply antagonistic to development, for development means activity, life, energy in ever stronger, fuller, and higher forms. Discipline, then, should arouse, stimulate, excite, enthuse, and inspire.

Discipline in its appeals to the many inner springs of conduct should act on the varied, conflicting, and unsteady impulses of the boy in such a way that, like the magic wand that brings order out of chaos, it causes them to fall into line, to lend support to each other, and, by concentrating all their forces in the same direction, to bring about a steady, continuous, and persistent activity towards the accomplishment of one purpose. For example, the boy is naturally curious, but many things excite his curiosity, and his impulse to attend to one is soon disturbed by the attraction of a second, and dissipation of intellectual force results. But he also likes praise from those he respects, and fears to receive their condemnation. He likes to live up to the standard they have of him. He prefers, too, not to let his companions beat him even at a task. If he identifies himself with his school or class with loyal esprit de corps, a slur on its honour or reputation stirs his resentment. Hence his curiosity about something may be prolonged into a persistent and patient inquiry, and the tendency to disturbance may be restrained, if the impulse to inquiry is supported by appeals to other sides of his nature. Discipline, thus, is a judicious and tactful strengthening and prolonging of the main impulses of inquiry and action by appeals to other innate impulses.

Among the many appeals to which instruction should resort are the dominance of a personal authority pleasantly, tactfully, and justly exercised so as to arouse the boy's respect and confidence, and the persuasiveness of a

sympathy that uplifts the boy into friendly fellowship with his teacher. These are the personal instruments of a teacher's art by which he plays on the boy's affection, fellowship, respect, and fear, and brings forth willing effort to attain the ideal the teacher has of him. With such authority and sympathy, criticism, suggestion, praise, blame, approbation, and disapprobation are encouraging and stimulating of activity. Even corporal punishment, under such conditions, is not merely repressive; it is also directive, for to physical pain is added the shame of bearing a respected friend's strong disapproval. It thus bars the road to evil, and helps along the path of righteousness.

The individualistic and social impulses should also be aroused to strengthen and steady the impulses of inquiry and action. The fighting spirit is strong in the boy, and competition, rivalry, and emulation are healthy forms of life if restrained by feelings of honour and fair-play, and balanced by a loyal esprit de corps that esteems the reputation of a class for good work as of greater moment than an individual success.

But above all other forms of stimulus is the inspiration of personal enthusiasm. Enthusiasm is contagious, and the enthusiasm of a teacher for this or that subject, for skill, for games, for honest work, for keenness, for fair-play, for the school reputation, or for whatever else it may be, if it be real and living, quickly infects the whole class or school. The class, thus, becomes a community pervaded by a common spirit. Such a quickening spirit radiating from a teacher's personality and ruling the whole school is the strongest influence that can be brought to stimulate and direct to valuable ends the forces pent up in the boy's nature. Its discipline is the highest form of discipline, for it is the discipline of human inspiration; and it should be the highest aim of a teacher to enthuse his school with

an all-pervading spirit of true work, of pride in manual skill, of independence and initiative, of keen strife and loyalty. Such a tone is impossible in the circumscribed life of the classroom desk. It can be produced only by an appeal to those impulses that are more strongly and freely manifested in outdoor recreations, games, contests, sports, school clubs, societies, and the like. These are essential to the formation of a strong corporate spirit animated by a sturdy and manly tone. The institution of school games and contests, and their elevation to a position of greater seriousness and respect would do much to raise and strengthen the tradition, tone, and corporate spirit of the primary school, and these are the main sources of a school's moral strength.

Inspiration, sympathy, even authority and the spur of competition, are needed throughout the whole of life to strengthen and steady endeavour to a persistent and courageous performance. There are few even of the most self-contained men who can persistently put forth their highest efforts unless sustained by the affectionate sympathy of their friends or stimulated by the admiration of enthusiastic followers. Rivalry is too common, and often too prominent, a motive to need our emphasis. Judiciously used it gives zest to effort without breeding too great an envy. Authority prevents much backsliding amongst the weaker many. But pronounced influence of an external character, however wisely, judiciously, and tactfully used, should, in the long run, give place to the inner discipline of self-control. Freedom is the final goal in the education of manhood. Yet freedom must come gradually, so that the power of self-mastery can strengthen itself over the little things before it faces the stronger temptations of life. But some measure of responsibility should not be too long delayed. As we have seen, the impulses of self-assertion and independence are, during

the early years of adolescence, gathering strength, and, unless won to the side of work and duty, either, innately weak, they will be repressed and for want of exercise will never grow to manly strength, or, natively strong, will be warped into sullen and obstinate forms and find a vicious bent in the quarrels and bickerings of the playground and the streets. Too strait a governance during this age often results in creating an inner spirit of lawlessness with an outer subservience to the law's force, a state characteristic of the hooligan. In the senior school, then, the modes of learning and of discipline should give increasing opportunities for independent learning, for initiative, and for personal responsibility, opportunities which are, under present-day primary school methods, hardly ever provided. It is a common reflection passed by business men on the product of our primary schools that youths of fourteen cannot be left in charge of any responsible task, and that even the smallest measure of freedom meets with abuse. Is not the explanation of this common failure to rise to responsibility to be found in the too much detailed teaching and supervision and the too little independent learning of the methods traditional in the primary school?

The methods of discipline and instruction adopted in the school should throw an increasing amount of responsibility on the pupil as he gets older. The conditions of the classroom hardly provide the best field for independent work. Out-of-classroom work is much more generous in opportunities. Such out-of-classroom pursuits are handicrafts, games, and field work in geography, nature knowledge and practical mathematics. Still freer modes of work are possible by organizing, in connexion with the school, reading circles for literature and history, ramblers' clubs for geography and nature study, sports clubs, and scout patrols. By these means the pupils

will become accustomed to increasing responsibility, and the elder boys will, in some measure, become initiated to the partial control of the younger boys. The boy of fourteen is, of course, far too young to have placed in his hands either full control over young pupils or perfect freedom for his own activity. Still, it is only when responsibility is placed on pupils that the sense of responsibility is encouraged, and it is wonderful how boys even of thirteen and fourteen rise to the occasion.

Side by side with the stimulation of desire and the inspiring direction of purpose should proceed the development of power of mind and of body, power to understand things and to deal effectively with them in action. Two agencies are at the instructor's command in directing this development. One is the activity by which the boy receives and makes his own the thought and modes of action of those around him, and which may be called his *receptivity*. The other is the force which urges him to understand things by his own effort and adapt his ideas and actions according to his personal experience of things. This is the boy's *originality*. Both agencies are constantly in operation from the beginning to the end of life, determining the growth of power. In some people receptivity is a stronger influence than originality; these are the people of imitative mould. In others originality is a markedly strong impulse; these are the leaders and inventors. Yet, whether a person be strongly receptive or strongly inventive, both agencies are at work, not antagonistic to each other, but as complements the one of the other; the one filling up the deficiencies and rounding off the points and angles of the other.

The boy shows his receptivity in the way he imitates the actions of others, by his readiness to act on the suggestion of those he thinks wiser than himself, and by

his appetite for imbibing ideas and information from all and sundry. It is only natural that what he thus receives he only partly understands. He can grasp it only so far as his past experience throws light on it. Moreover, it only falls on an open and willing mind if it can be brought into relation with some desire or purpose that is moving him to think or act. Thus, all ideals, thoughts, or actions that are suggested are not used. Some enter only to be rejected; others to languish and die for want of exercise. Only those add to the boy's power that take some hold on his feelings and help forward some purpose on which his mind is set. In receiving these he fits them into his experience, makes use of them in his thought and actions, acts them out in some way in his own life, and so, bit by bit, comes to a fuller and fuller understanding and appreciation of them. But such understanding and appreciation, let it be noted, are his own, marked by his own individuality. Thus, during his years of growth, through his receptivity, he makes his own the thought and modes of action of those around him, and, acting these out in his own way, he moulds his life in ideals and tastes, in opinions and beliefs, in behaviour, manners and speech on the social pattern.

Without this power of assimilating the experience of others, advance would be very painful and slow. If left to his own originality to interpret the world and adapt his ideas and actions to constantly changing conditions, a child would hardly advance beyond the most elementary forms of dealing with things. Receptivity, thus, makes for rapid advance along the line of social tradition. It is by means of this activity—the great conserving agency in civilization—that social tradition is handed down from generation to generation. Education, if it means anything at all, means that the elders of one generation lead

their children to assimilate all that they conceive to be good and true, and useful and beautiful in their own civilization, and they do this well only in so far as they lead their children to understand it and use it, so that it becomes power to deal with the world. Instruction, then, must make use of imitation and suggestion as two of the most important of the school's educative agencies. Indeed, when one compares the ignorance of youth with the power necessary for effective manhood, one realizes that, during the period of growth, the boy must be very largely receptive, copying from others in thought and action, and in standards of appreciation.

Every piece of teaching and discipline is, in a large measure, an organization of the agencies of imitation and suggestion. Especially are these agencies influential in forming character when the suggestion emanates from a personality that evokes the pupil's sympathy, admiration, and reverence. The heroes of literature and history should act thus on the young mind. In the influence of the school tradition, too, the past lives and operates through the force of suggestion. Just as tradition in a family leads each generation to endeavour to live up to the standard the past sets, so a strong school tradition inspires each succeeding race of pupils to greater effort. Happy is the schoolmaster, and fortunate is the schoolboy, whose school has a long line of old pupils who have won honours not only in the field of scholarship, but also in the battle of life. Their high example gives their successors a pride in their school, and is a spur to their endeavour to live up to it. It should be one of the great aims of a schoolmaster to establish for his school such a tradition, and to make it a living force to evoke a high school pride. Unfortunately for the primary school it has become the custom for the pupils, on leaving, to pass away and sever all connexion with their school.

There is, usually, no old boys' club, no past *v.* present match, no link whatever to bind the present to the past and to foster pride in a school tradition. Such a link is more difficult to forge in a day school than in a boarding school, and most difficult of all when the pupils leave so young as fourteen. Yet it is not impossible, and the gain in *morale* is greatly worth the trouble.

Receptivity, thus, makes for continuity of social tradition. It also makes for solidarity amongst the members of society. As each receives into his own life the experience of those around him and acts it out in his own thought and conduct, he learns, through the resulting experience, to know and appreciate the ideas and feelings of others. The little girl playing at funerals and acting the grief and sorrow at the imagined loss of a loved child is, as far as her small experience goes, bringing herself into sympathetic touch with all who suffer grief and loss. She realizes through her imitative act something—though by no means all—of what it means to suffer bereavement, and, in consequence, her sympathies go out with greater warmth to those in distress. Every such imitation acted out, and every suggestion taken into one's life thus makes the bond between oneself and others a closer and a stronger one.

But receptivity, while conserving the good in tradition, also conserves the bad. By itself it means stagnation. For the standard of thought and conduct to advance, receptivity must be supplemented by the action of discovery and invention which are the outcome of the originality of the human organism. The two acting together are the complement, the one of the other; the one preserves the continuity of social tradition and maintains its solidarity and stability, thus making a sound basis for progress, indeed, by its action, making advance in any wise possible; the other, taking advantage of the

advances of the past, uses them as stepping-stones for further onward movement. Thus, civilization, both in the nation and in the individual, progresses on its steady onward march by means of the combined agencies of receptivity and originality, of imitation and invention, of conservatism and radicalism.

The originality of the boy is seen in the impulses of inquiry and action by which he is led to experience things for himself, interpret them without external suggestion, and invent modes of suitable action. These innate impulses, as we have seen, lead him to use his sense organs on all things within his range, impel him to handle them and move them about in every possible way, often just to satisfy the mere impulse of "seeing what will happen". In a thousand ways he is consciously and unconsciously experimenting with his environment, and every experiment adds to his experience of the things about him, of how he should act to them, and of how they react to him, of the pleasures and satisfactions that can be won from them, and of the pains and disappointments that should be avoided. Originality, then, is the spirit of inquiry, of experiment, of independent action by which the boy learns for himself and profits by his experience. It is the impulse that lies at the root of self-learning. Hence instruction should establish it as the mainspring of all intellectual striving.

Every object and event should be looked at as presenting some problem to be inquired into, as demanding an explanation, as requiring to be turned to use; and suggestions as to how it should be dealt with, experimented with, considered and used, should be demanded of the pupils and should be freely offered by them. Naturally, suggestions will often be crude and wide of the mark, indicative of want of experience and hasty thought, and the teacher will need to be both stimulating in hinting

at new and better lines of thought for the pupils to open out and follow, and critical of suggestions when given. Fertility of suggestion, ready initiative and ingenuity cannot be perfected at once. Progress is often slow but, as long as the pupil's mind is alert and ready to seize on new points and to grasp their bearing, open to examine likely comparisons and contrasts, and steady and persistent in following up a line of inquiry, good is being done even if there be little result in the shape of number of facts learnt or conclusions established. The inquiring habit of mind is the all-important characteristic, not the amount of information absorbed. The one is essential to power, the other is destructive of it, for in mere absorption, which is distinct from receptivity, the mind is stolidly passive, at least so far as its power to deal with things is concerned. A grave danger, however, lies in originality being allowed to waste itself in aimless inquisitiveness, futile imaginings and irresponsible action. The impulses of inquiry and independent action need, as do all impulses, to be under the control of purpose, which will lift them from the plane of aimless and flighty curiosity to that of the pursuit of some definite end, and, hence, they require the guidance of an inspiring and regulating discipline.

Though the force of originality is the mainspring of mental activity, yet receptivity must not be regarded as being passive. Receptivity is not the same as mere absorption of other people's facts and ideas. Mere absorption, as we have said, leads simply to storing the mind with facts and rules. It cannot lead to power. As we have seen, a suggestion to become a power in life must be assimilated into the stream of mental activity. It must be fitted into one's experience, used in one's thought and action, and acted out in some way or other. In this assimilation lies the opportunity for originality. The way the mind interprets the suggested idea, brings it into

relation with some purpose to be accomplished, uses it to develop a line of thought or action, is entirely an individual process, marked by originality, and is essentially active.

Moreover, what others think and how others act are as fit objects for inquiry as are the qualities of things; and the spirit of inquiry may find in the study of a book, in listening to an address, or in watching some action being performed by another, as fine a field for exercise as in a laboratory. The essence of active inquiry is the endeavour to develop a line of thought to some end, to try to interpret and explain facts, and to call up suitable comparisons and contrasts to aid the judgment in forming conclusions. What is interpreted or explained may be presented by observing an object, by watching an experiment, through the pages of a book, or in the words of a lecturer. It is the attitude of mind to what is presented that makes the inquiry, not the external forms on which many modern writers seem to insist so much. Physical activity in laboratories, workshops, and in the field does not necessarily imply mental activity, nor mental activity the activity of invention. But just because it is the attitude of mind that makes the inquirer, there may be much working in laboratories and workshops, as there may be much listening and reading, that exhibits no vestige of independent thought. Reading and listening may be simply imbibing in which there is no particle of independent and critical judgment. Similarly, watching and handling things in a laboratory or workshop, no matter how much each pupil works separately from the others, may be the merest mechanical carrying out of instructions, worthless except for training manipulative skill. It is to be feared that much of the so-called independent learning from books and of the individual work in laboratories and workshops never rises above the plane of absorption. The

pupils are hardly even receptive, for they do not assimilate what they read and do. Whatever be the work the pupils are engaged in—listening to oral teaching, reading from books, or working independently in workshop or laboratory—it should be the aim of the teacher to encourage initiative, ingenuity, and independent judgment.

Another aspect of power has important applications in teaching method. Power to deal with things has a double aspect—the inner side of thought and feeling, and the outer side of physical expression and action. The two together are necessary for any effective dealing with things.

If we agree with Professor James, we would affirm that, so far as feeling is concerned, the inner state is due to sensations resulting from the physical state; that is, we first strike the angry blow and, as a result, feel angry, or we assume the attitude, demeanour and looks of pity and then feel the pity. Whether this be so or not is a theoretical point, and is probably an extreme view. What, however, is clear is that the inner feeling and the outer expression are so intimately connected that they are two aspects of one organic state. To increase or decrease the physical action is to increase or decrease the internal feeling. Thus we learn to control our feelings by inhibiting their physical expression, and, conversely, we intensify our feelings by giving free rein to their expression and intensifying the outer forms by every means in our power. For example, we may lessen the feeling of fear and heighten our courage in the face of danger by endeavouring to preserve a calm and steadfast demeanour and simulating a jauntiness of bearing. We can, thus, carry ourselves through a trial bravely when our first impulse was to turn tail and run.

Symbols, forms, signs, and ritual all act in the same way as outer expressions for sentiments. They become

centres round which vague feelings can crystallize into definite shapes and become ideas. The vague feeling of nationality, for example, finds a point of concentration in the Flag and the National Anthem, and the sentiment takes clearer form in the chorus "Britons never shall be slaves". In the Army and Navy, in the Church, in secret societies, and at elections frequent use is made of such devices to intensify feeling and to focus it on some definite sentiment. Regimental standards, battle cries, signals to the fleet, watchwords, the cross, and church ritual have played great parts in human history, and it is obvious that, since they have moved armies, navies, and whole nations to great deeds, similar devices can play an important part in the development of feeling and sentiment in the young. A school cap, badge or colours, and a motto are valuable aids to concentrating corporate feeling and stimulating esprit de corps. A solemn ritual intensifies the awe and reverence of a religious service. A merry verse is all the more appreciated by singing it to a merry tune, and the appeal is more fundamental still if assisted by dance and action. The rhythm of poetry is felt with greater force either if the voice give expression to it, or if some movement of the body beat it out in time. A scene acted or dramatically recited with appropriate action and gesture appeals to the imagination and emotion with greater force than if read silently. Hence acting, dramatic recitation, and singing should be used as aids to the appreciation of literature, and patriotic songs, national emblems and flags, the ritual of saluting the flag, national days, historic pageants and tableaux are valuable means for strengthening the patriotic sentiment. Similar ritual and symbolism should be freely used at school assemblies.

Even in smaller matters the outer symbolism and forms of sentiment should not be overlooked. Standing at the

entrance of a visitor, capping a master or elder in the street, shaking hands before and after a contest in wrestling or boxing, cheering the visitors at the close of a school match, may be considered small points in themselves, but each has its weight in cultivating respect and good feeling. A wise teacher will search for all the most appropriate, simple, and appealing forms of expression on which the main sentiments that school should cultivate can concentrate themselves. He will institute them as school customs to be invariably used on appropriate occasions, and will endeavour to give to each a meaning as rich, as moving, and as potent for action as possible.

The value of outer expression is no less important for thought than it is for feeling. Outer expression at once brings the thought to a point, and materializes it in some perceptible form, which brings out whatever of vagueness and inaccuracy pervades it. Indeed, an idea must have crystallized beyond a certain degree of nebulosity before expression in any form becomes at all possible, and the intangible thought that cannot be seized and forced to manifest itself in some perceivable form is of little use in a practical world. Try to reproduce the shape of an object with the pencil or its colour with the brush, and you will find that neither casual observation nor desultory memory will serve you. You must have cultivated first the "seeing eye" that goes beyond mere looking to the perception of form and colour with nice discrimination as to proportion, curvature, relation of lines to each other, and shades. Again try to put an idea into words and you must have grasped with some distinctness those qualities and relations involved in its meaning that are represented by the nouns, verbs, adjectives, and adverbs of your speech; and the greater clearness with which you analyse your thought, the greater is the nicety with which you select your language. For example, compare the

boy who writes "the snow fell" with the one who says "the large white flakes floated silently down through the still air". The former has grasped the bare, bald fact crudely; the latter has noticed the kind of flakes that fall in still weather, and how they come down in a way quite different from the falling of rain or hail. The former has looked but not seen anything but the obvious, the latter has the "seeing eye".

If, after expressing your thought in words, some second person read your account the clearness of your thought is brought to the further test of his understanding. Can he from your expression think your thought? To make clear to others your understanding of a thing is a very fair test of your power over your own thought of the thing, a conclusion that teachers, of all people, should take to heart. Hence the writing of essays and answers to questions, and the drawing and painting of objects, if effort be made to secure exactness and clearness, and if followed by the acute criticism of a *competent* teacher, are very important modes of cultivating mental power.

Verbal expression is, in many respects, a more valuable mental discipline than practical action. It demands a deeper analysis of the event than does action, which often "gets there" without one's knowing how it arrives. A bowler who can make a ball spin, break, or swerve often cannot say with any clearness how he does it, or, to take an example from the schoolroom, a boy, if asked to place the cross pieces of a "square" kite in position, can do so at once, but more often than not he cannot express with any precision the relationship he has established between them. Verbal expression and the drawing arts should, then, have a place in every form of education, since they are so essential to exact thinking and careful observation. For pupils whose hands must serve their brains a more practical form of expression is also indispensable. In-

deed, there are many forms of knowing in which verbal expression, if not actually impossible, is most inappropriate. For example, it matters little whether a bowler can or cannot say how he sends down the ball. The important thing is that he can capture wickets; and a similar judgment is true of many actions that an artisan is called on to perform. Verbal or some other form of expression is most appropriate in actions of considerable complexity in which a line of conduct has to be planned out. When an action involves some complex arrangement of things, extending, perhaps, over some considerable period of time, and the possibilities of error are numerous, the whole process needs to be thought out in advance with the aid of words, diagrams, and other symbols of thought. If it is to be successful the performance of such an act cannot be left to a process of trial. Intelligence must make clear to itself the exact nature of the conditions under which the action has to take place.

Our knowledge of swimming, for example, is best expressed in the act of swimming, and not in that of talking about it, and may well be learnt by the empiric method of trial and failure (though I must own that, in my own case, I made little progress in the art until I had made clear to my intelligence the action of the palms of the hands on the water). On the other hand, we cannot set about making a monoplane to swim in air without planning the whole process beforehand with the aid of diagrammatic, mathematical, and verbal expression. There must be made clear the exact relation of the weight of the ship to the weight of the air, and the various pressures that must be exerted by the propeller on the air and the air on the planes. Even then, the final test of our practical power over the air is our ability to convert our idea of an aeroplane into an actual aeroplane that flies. Ideas that look very well on paper have a way of turning out very

badly in practice, as many an inventor knows to his cost. Many a pupil thinks he knows how to measure the area of a field or make a jointed box because he has grasped the diagrams and verbal explanations of the theory. His castle in the air, however, often proves to be a delusion when every step in the practical doing brings difficulties unthought of in mastering the theory, and demands initiative and ingenuity in adapting an outline process (which is all that theory can give) to a particular case; a power of adaptation that is all-important for success in practical life.

In school work, then, the power to think should be trained in close correlation with some form of analytic expression on the one side, and with some form of practical action on the other. For exactness and definiteness of expression the language and drawing arts are the most valuable, to which painting and modelling may be added when colour and solid form are involved. The drawing arts are particularly valuable in all forms of craftmanship. Drawing to scale is a necessary preliminary to all exact workmanship. Bold, free, quick sketching to outline the main features of an object or process is, also, a necessary and valuable accomplishment.

Outward expression of thought and artistic expression of feeling always involve some form of bodily skill. If some form of skill, such as carving, be examined, it is evident that the perfection of skilled power is due to a combination of intelligence and automatism. In the main, intelligence is the higher power directing and controlling the activity towards its end, and automatism is the machinery which intelligence makes use of, and without which its aims and plans would be but empty dreams.

Intelligence plays its first part in skill in planning the action before the movement actually begins. The end has to be conceived, and the action planned in main outline.

The conception of the end gives the opportunity for the exercise of taste and for flights of the imagination. All good works of skill are marked by an effort to obtain either artistic effect or perfection of utility. The intelligence, however, must bring its ideals down to earth, and the end must be conceived in relation to the actual conditions of things and especially in relation to the practical process of attaining it. The mind, therefore, must grasp the conditions truly in width of outlook and in exactness of detail, in telescopic perspective as well as in microscopic definiteness.

The preliminary work of mind in inventing, planning, and designing is a part of skill that cannot be neglected. It is essential to all the higher forms of craftmanship. There can be no real training in skill without the training in taste, in beauty of form and colour, and without a training of the imagination to original and bold invention. At the same time, the training should develop these in relation to practical intelligence which takes account of the actual conditions of materials and tools.

When the action begins intelligence takes up another rôle. Its work is not done. Attention cannot for a moment be relaxed as long as the movement is progressing. Its incidence, however, is not so much on the actual movements of the body as on the material being operated on or the external circumstances being controlled. Intelligence is directed outward through the senses. The eyes are watching, the ears listening, and the fingers feeling. By every appropriate sense, intelligence is informing itself of the state of the material and the changes taking place in it. Intelligence, then, in skilled activity is perceptual, but it is perceptual in a different way from that in observation. In observation we may be said to perceive in order to know. In skilled activity we perceive in order to act, and hence, every impression of

sight, hearing, touch, and movement has to be interpreted not as knowledge, but in terms of action.

It is in this sense that we may say that "the hand guides the eye". It does so, however, through the medium of the intelligence which has to give meaning to the sense impressions it receives in the light of its previous experience and of its present aims. It should, however, be remembered that "the eye" is not the only sense that guides, nor "the hand" the only instrument of movement. Sight, touch, hearing, and the sense of movement are almost always, in varying proportions, factors in the control. Of special importance, though very liable to be unnoticed on account of their obscurity, are the sensations of movement. These give us impressions of the amount, kind, quickness, and intensity of the movement and of the muscular effort made. They give us, usually, the first indication whether a movement is, or is not, likely to be successful. The memory of them invariably acts as a subconscious guide to movement. Without them and the control they give, skilled movement would be impossible. Their importance for teaching method lies in the fact that they can only be experienced by actually practising the movements that give rise to them. In no way can we obtain a second-hand experience of them. They are so obscure and vague that there is hardly a vocabulary in which to describe them. We cannot, by watching the movements of others, gain much idea of their nature. Practising movements with a view to controlling material is, then, the only way of obtaining this motor experience without which skill is impossible.

Besides the hand, many other parts of the body are engaged in the movements of skill. The arm, shoulders, the trunk, the legs and, in many cases, the chest and lungs are brought into action to support the movements of the hand. Some control the direction of the movement,

some the degree of its force, and others, such as the trunk and legs and the chest, operate in such a way as to give the fullest effect to the movements of the arm and hand.

Intelligence, we have seen, is directed rather to the effects of movement than to the movements themselves. These in perfect skill are performed with perfect automatism. For example, intelligence issues the command to strike the open chord in key C, and, if the person be a skilled piano player, the arm, hand, and fingers move in harmonious co-ordination without intelligence doing more than note the general arrangement of black and white keys on the piano-board. In playing a simple chord the automatism involved is of a fairly simple character. Its full complexity is exhibited in playing a symphony or fugue on the organ, when the fingers of each hand and the feet are engaged in a series of rapid movements, and yet the movements of each have to be co-ordinated with those of the others, in order to keep correct time and secure the right rhythm and expression. Sometimes, it is true, intelligence is called in to attend to the motor co-ordination. This is always the case in learning a movement, and when a mistake has been made or a hitch occurs. All such attention to the mechanism of movement is, however, a sign of imperfect skill.

It is obvious that such automatism is a great gain to power. It is not only economical of energy, but it makes for quickness, ease, and smoothness of action. The more the various muscles and groups of muscles can act together in adaptive action with machine-like precision, the more perfect will the result be. Awkwardness and clumsiness are evidence of want of perfect mechanism in muscular co-ordination. Ease, smoothness, grace, and quickness of movement are the signs of perfect automatism.

Automatism is seen not only in the co-ordination of movement, but also in the guidance of movement by the senses. For example, a fencer guides his movements by watching the face and actions of his opponent, and feeling the pressure and movement of his foil. The impressions he receives he interprets as signs of this or that form of attack. The interpretation, however, cannot rest at this point. Intelligence must respond by instituting a suitable reply. As we have already said, in action, impressions need to be interpreted in terms of movement adapted to the circumstances. In this response readiness, quickness, and sureness are the marks of skilled action. Action should follow close on the heels of impression, and with certain effect.

Readiness, sureness, and quickness of action are due to automatism, partly on the perceptual and partly on the motor side of the process. In perceiving, the senses should be alert in seizing on impressions, and the intelligence quick to recognize them. These marks of good perception only come by much practice. A doctor readily picks out the symptoms of those diseases of which he has most experience. He is a skilled doctor when seeing and recognizing become automatic, the quickness and sureness of his diagnosis resting on a well-oiled perceiving mechanism. Similarly, by much practice, a painter, carver, fencer, or craftsman attains to sureness and quickness in skill by training the senses to alertness in perceiving, and the intelligence to quickness in recognizing.

The impressions recognized, the intelligence proceeds to institute the motor response to complete the action. Here, again, automatism makes for perfection. Thought often means hesitation and bungling, and is always slow. The skilled fencer does not reflect on the guards by which he parries the lunges of his opponent. These are

made more quickly than thought. A smooth-working mechanism alone can produce that instantaneous and certain motor response which is the hall-mark of perfect skill.

The above analysis of the action of intelligence and automatism on the sensory and motor sides of skill has important bearings on the training of it.

Skill is seen to be a matter of intelligence, something in which taste, imagination, invention, and quick and acute perception are involved. It is obvious, then, that only those practical pursuits that exercise these activities will train a perfect skill. Physical exercises, Swedish drills, and other more or less mechanical forms of movement do not attain to this educational standard. They do not cultivate taste, nor imagination, nor invention, nor even the practical qualities of intelligence that show themselves in alertness, resource, and sureness. They do, of course, develop a motor organization, and so produce ease and smoothness of movement. It is, however, a motor organization divorced from anything which can control or guide it in doing the work of life. Mechanical drills can form a good motor machine, but cannot cultivate the power to use it for an æsthetic, useful, or recreative purpose. It is as if one tried to train a fencer by practising him in the lunges and parries of the art, without ever allowing him to face an opponent to learn to use his head and his senses. The pursuits that are valuable in training all sides of skill are those which exercise the motor machinery in conjunction with perceptual intelligence for the accomplishment of some æsthetic, useful, or recreative purpose.

Such pursuits include drawing, painting, carving, modelling, handicrafts, football, cricket, fencing, boxing, wrestling, dancing, and, may we add, that form of expressing the rhythm and feeling of music in graceful

movement which has been perfected by M. Jacques Dalcroze, and to which he has given the name of Eurhythmics.

At the same time, any high degree of skill can only be attained by perfecting the automatism of motor co-ordination and of motor response to sensory stimuli. There is one royal road to this, and that is by practice. Practice, more practice, and still more practice is the only prescription for perfect skill. Practice makes perfect in the sense that it fixes and stereotypes in the system a way of doing something. But it may fix a wrong way as easily as a right one, and this frequently happens in training the young. There are so many wrong ways of doing things and so few right ones, and the wrong ones are usually so much easier to do than the right ones, that it is not surprising that, in any form of skill from walking and talking to painting and carving, more pupils practise the actions wrongly than rightly; as witness the number of men and women who have become slovenly walkers and talkers, and inefficient manipulators of the pencil and brush, although they have spent years in the practice of these arts.

The remedy for the practising of wrong forms of action is to demonstrate the elements of each form of movement with pronounced clearness, even with exaggerated emphasis, and then to cause each to be practised until some degree of automatism has been fixed. The practice should be accompanied by the searching criticism and the stimulating correction of a competent and tactful teacher. Practice without criticism and correction is usually worse than useless.

Practice after demonstration is, in reality, a form of drill, which, under the discipline of criticism and correction, is necessary in training every form of skill. To become an efficient pianist the learner must spend months

at scales. So, too, in learning to talk with correct pronunciation and distinct enunciation, to sing with good tone, to draw with easy boldness, to paint, to use tools, to carve, to box, to fence, to wrestle, to do anything which has to be learnt, a prolonged period of practice, of drill, is required to make the senso-motor machinery smooth and easy of working.

Drill, however, is mechanical. It tends to dullness, and is usually unintelligently and grudgingly performed. To some extent this could be remedied by leading the pupils to appreciate the value of the drill so that, although it is drudgery, it will not be unintelligent drudgery. Further, mechanical drill should always be in periods short but of frequent recurrence. A burst of attentive effort to improve can then be maintained during the whole period of the practice. The question, however, which should naturally arise in a teacher's mind is: need drills be dull and mechanical? Cannot the necessary exercises be presented in some form that will awaken interest, stimulate desire, and arouse the imagination and the intelligence? A little reflection will show that in almost every form of activity exercises can be wrapped up in attractive forms. For music pupils there are published "studies" in scales which not only give the desired practice, but which aim, also, at an æsthetic effect. In the same way many formal physical exercises can be presented as simple gymnastic games. Forms for making interesting and imaginative the practice in drawing, painting, and handicraft will readily suggest themselves to the teacher of resource. A good teacher will never make "work" a drudgery. He will use every device that ingenuity can suggest to make work attractive, to lead pupils to grasp—and what is better, to appreciate with intensity—the value of it, and to arouse desire for improvement; yet, he will keep his eye fixed all the time

on securing those necessary conditions of practice, criticism, and correction that are essential to a skilled power of value.

It must be remembered, however, that drill, in whatever form it is presented, is only a means, not an end. It is preparatory to the engaging in those practical pursuits which demand the exercise of taste, imagination, invention, and practical perceptual intelligence. These pursuits are the staple pursuits in the training of skill of any high order.

CHAPTER IV.

THE CURRICULUM OF THE PRIMARY ARTISAN SCHOOL.

SCHOOL instruction, we have seen, educates through the spirit of its discipline. It finds its living hold on the boy's will by its appeal to his spontaneous interests, feelings, and activities, but it should also uplift it to loftier aims and strengthen it in manly persistence. The mainstay of the school discipline should be stimulus and encouragement which are exemplified in their highest and most powerful form in the inspiration that emanates from a teacher of powerful and sympathetic personality. Such inspiration acts directly between the teacher and each individual pupil, but most intensely through a corporate spirit of honest work, manly strife and loyalty, which is at once the highest product of the educator's art and the main channel of his disciplinary power. The object of discipline is the development of power—intellectual, moral, and physical—of a vigorously dynamic order that has for its end effective practical action in life's work. On its inner side power is exhibited in a spirit of keen inquiry ordered by an acute intelligence. On its outward side it shows itself in a growing skill, in ingenuity and initiative in dealing practically with things, and in spirited and honourable competition and co-operation in work and games.

The utility—in its broadest sense—of the whole instruction lies in its bearing on the boy's life, not only in the distant future of manhood, but also in the present

period of boyhood and youth. The power cultivated by the disciplined activity of the school occupations should have such a hold on the boy's nature and should be in such touch with his surroundings that the boy can use it in his everyday out-of-school life. It should be no such artificial power as can be used only in artificial tasks specially designed for classroom conditions. The streams of the boy's experience in and out of school should mingle inextricably with each other—the one refining, chastening and idealizing, the other enlivening, strengthening and bringing to practical earth—so that his whole life's experience flows forward in one broad flood, increasing slowly but surely in the depth, breadth, and intensity of its power, and in the force with which it moulds the boy's will towards the goal of manly virtues and power.

Every part of the school organization should be so devised as to strengthen such a formative discipline of the powers of active learning and of intelligent, spirited action: On the one side, the scope of the school occupations, their nature, and the spirit in which they are carried on will determine the kind of intellectual and physical powers that will be called into activity; and the extent to which such occupations can be brought into close harmony with the boy's out-of-school experience will be the measure of their permanent value. On the other hand, the teacher's personality, his living hold on the boy's will, his power over the subjects he teaches, and his enthusiasm for them are the human forces that will inspire the boy to effort, strengthen his persistence, intensify his strenuousness, and guide the growth of his many-sided powers to a wider and higher skill. These, the occupations and the living force of a human character, are the fundamental influences of school life, and they can have their fullest and highest effect only when the

buildings and equipment give unhampered scope for their perfect action. Important as buildings and equipment are, however, they are but the shell to enclose the living forces of the school pursuits and the teacher's power. Splendid buildings and elaborate equipment without the inner quickening spirit are like a nut with a withered kernel. A good teacher is a great educative force even with bare walls and rough benches, and his ingenuity will devise means out of the cheapest and rudest materials for carrying on every manner of intelligent inquiry and practical pursuit. The bad teacher with all the material resources that money can buy and with all the external forms of inquiry and practical occupation, is the dead hand of a lifeless corpse. It is the spirit of the teacher and of his teaching that is the breath of the school's life.

The problems of the organization of the teachers and of the buildings and equipment must be left as big questions for future chapters. They cannot be dismissed in a word. What concerns us at present is the scope and nature of the school pursuits, and the methods of teaching them so that intelligent inquiry, self-study, practical action, and a high spirit of work may be embodied in the learning of them.

The school occupations should, we have seen, serve both a cultured and a practical end. To many these may seem opposed or even contradictory aims. Certainly, if culture be limited to a narrow literary and æsthetic culture, and practical work to the strictest utilitarianism, they are, if not antagonistic, as opposite as the two poles. Between them is a deep gulf over which each looks at the other with every mark of contempt. In a wide and generous perspective of life culture and practical affairs are not seen in opposition. Human life presents to us two sides: an inner side of reflection and

imagination, and an outer side of acting with things and men to accomplish practical ends. When these are separated, the one from the other, when they do not blend, each loses in richness of content, in the scope of its power, and in its touch with the whole of life and of human nature. Human life should be one. Its activity on its inner and outer sides should express an underlying unity. The inner life of reflection and imagination has its highest work in refining, rationalizing, and idealizing in truth, in beauty, and in goodness the outer side of material and practical action. On the other hand, the practical side of life enriches, vitalizes, and humanizes the ideals of the inner life by its close and intimate touch with things and men.

A culture, then, that can find little outlet, or none, in practical life and citizenship is an affectation and a sentimentality. It is a devitalized shadow with no hold on real life. On the other hand, a life starved in ideals and devoid of principles is either a sordid getting of material gains or a pursuit of sensuous appetites unless, indeed, as sometimes happens, it be so empty of inner purpose as to be but a monotonous routine and a mechanical grind.

True culture is eminently practical. Its object is to raise the standard of one's daily work and life so that one finds in them more to occupy the intelligence and imagination, to call out the instinct to truth and beauty, and to inspire to high effort. It has its fullest hold on life when it makes of the daily work and task a joy and a pleasure, and when in the performance of them the imagination inspires one to a higher and higher perfection of work and workmanship. True culture, then, exhibits itself in goodness, and beauty, and truth of life in all its aspects, in the daily task as much as in the evening's recreation. When the daily work is begun and carried through in the spirit of perfection, with the object of

getting the most out of it for the soul, then it is in its truest essence culture. A man who puts his spiritual life into his work, and from his work feeds his spiritual life, has the fire of true culture in him, however narrow a field its light may illumine. The aim of the school, then, should be so to combine culture and utility in its pursuits that it may produce in the lives of its pupils a practical culture and a cultured practice.

What, then, should be the scope of the cultured and practical pursuits of a school? The answer is to be found in a consideration of the fundamental tendencies of human life. Each one of us finds within himself some spontaneous response towards a higher ideal. A noble and chivalrous deed, an unselfish and self-denying action, a deed of courage strike answering chords in our hearts, and we are uplifted above the commonplace, the prosaic, the sordid, and the petty. Such inner forces are the springs of our spiritual life, and to nourish and strengthen them we must feed them on a lofty tradition. They must be fed on something or die. Shall they, in the case of our artisan youths, feed on the deeds of the bully, the braggadocio, and the pirate, and grow to perverted and base forms of admiration and reverence—since human nature must reverence something great and powerful, either the greatly good or the greatly bad,—or shall they be fed on the noblest and purest traditions enshrined in our national literature? English literature abounds in poems, ballads, and stories the most heroic, romantic, and adventurous, such as will capture every young boy's heart if it be not perverted. These are the English boys' spiritual heritage. To deprive them of it is to rob them of their birthright; and their right is to feed on the best that England's great spirits have left in heroic tradition. To literature, then, we give first place in the programme of school culture.

But to enter with heart and understanding into literature involves a power over the English language—not as she is spoken, but as she is written. The language of literature is not the language of the street or the home. It is more continuous and coherent in its thought, more vivid and forceful in its style, more lofty and exalted in its appeal to noble passion. In the extent of its vocabulary, in the precision in the use of its words, in the connectedness of its structure, in the force and beauty of its figures it is a *new* language to be learnt. The boy cannot learn it if he never *hears* it, and if he does not *read* it often. Hence our teachers must read much to their pupils, bringing out the beauty and force of the language and thought, and the play of fancy and feeling; and our pupils must read much to themselves and for themselves.

Second in the list of great tendencies of our nature are those that bind us to our fellows in corporate life. Man cannot bear to live alone. He likes to feel the crowd about him, to have its support in thought and in action, and to receive its praise and approbation. To satisfy this mob instinct he forms clubs, societies, and unions, to think, feel, and act in unison with his fellows for common purposes of religion, politics, amusement, or for the pursuit of beauty and truth. By thinking, feeling, and acting corporately in such societies there grow up a corporate intelligence, a corporate conscience, and a corporate life, different from his individual intelligence, conscience, and life. The widest secular community that claims him and with which he can identify himself is the nation. Into this community he is born. To it he has duties, and from it he claims rights.

How can these innate instincts to corporate life expand to the height and breadth of national life? How can they be disciplined to a keen and intelligent interest in national affairs, and to strong practical action for the

national good? These aims can be attained only by feeding the boy's social impulses on a national tradition presented so as to stir his pride, arouse his admiration and reverence, stimulate his intelligence, and urge him to patriotic action. History is the nation's tradition, and tradition when we come under its sway is all-powerful. A family with a tradition has a force pervading its family life that strengthens it and carries it on from generation to generation with increasing force. Each generation imbibes the tradition, glories in it, lives up to it, and hands it on stronger than ever to the next generation. The tradition is the source of the family pride and the family honour, at times the family curse. The school that has a strong and lofty tradition and that boasts a roll of honourable names, has a living force abiding in it that moulds each succeeding generation of pupils, and uplifts each and all above the common herd.

As with the family and school, so it is with the nation. The national tradition should be used so as to be a powerful influence in the life of the young, impelling them to think, feel, and act in harmony with the noblest spirit of the nation's past. It should act, too, as a force urging youth to enter with enthusiasm into those forms of national activities that are suited to their age. Tradition, however, should be an enlightening and an enlightened one. It should lead us to enter with understanding into the needs and aspirations of the nation, and to perceive the value of those organizations and institutions by which the nation's will expresses itself in a national voice and in national action. The aim, then, of the teaching of history, as far as primary and secondary education is concerned, is to inspire youth with national feelings, imbue them with national sentiment, and enlighten them as regards the national life.

Like all noble traditions, history should inspire those

who come under its sway to loving service. There is no vital strength in a community the members of which can speak only of their rights. Corporate life that has real strength is based on the service of each member. Each member owes a duty to the community in his thoughts, his words, and his deeds. "Ich dien" is the glorious motto of our royal house; it should be the watchword of every loyal citizen. It is, then, essential in the teaching of history to make use of every opportunity and to devise means for national sentiment in the young to find expression in some form of national service.

A nation does not live alone self-contained and self-sufficing. It lives its life only with the help of, and in relation with, other nations. Commodities pass freely from country to country to satisfy the needs and tastes of the inhabitants of each; and not commodities only, but political ideas and moral and religious truths spread from land to land to bring about a spiritual communion as commerce does an economic one. To understand our place in the economic and political life of the nations is the necessary complement to understanding our national life; and to think internationally brings us to the study of geography.

The life of the people of a country is determined largely by its geographic conditions, its advantages and disadvantages of climate, of resources, and of means of communication. This is true not only of the economic life of a people, but also of its social and political life. It is true, also, of its history. Each type of natural region—fertile river valley, wide grasslands, mountain region—has its own peculiar kinds of industry. Each has a social organization and a political machinery to suit its own conditions. The logic of geography is felt, too, in the movements of history. Rome, Alexandria, Venice rose to power before the discovery of the New World, owing

to their Mediterranean position. So, too, Spain, Portugal, France, Holland, and England, after that discovery, were by the inevitable logic of geography the natural inheritors of Venetian greatness. England's isolated position made her the last to feel the movement to world commerce and empire. It determined also that, once having felt it, she should win the race. Nor are we even to this day free from the influence of geographic conditions in the history of nations. The policy of each nation is inevitably controlled and determined by questions of defensive frontiers, resources of industry, and means of communication. Each country seeks a frontier that is a natural barrier. It seeks, too, to bring under its own government all those sources of industry and means of communication that are vital to it. Thus, Germany looks to control the whole Rhine; Austria, the Danube; Russia seeks ice-free ports to the West, South, and East; Egypt cannot permit the head waters of the Nile to be in alien hands; India needs a defensible North-West frontier. At every point in the life of a country and in its history, geographical conditions play their part, moulding the character of its people, determining their staple occupations, the bent of their civilization, the nature of their social institutions, the ramifications of their economic and political power, and the sphere of their influence in the world. So studied, geography brings the mind right up against the larger forces of Nature that determine man's life and the destiny of nations. It also gives us an insight into the manifold diversity of the human societies—their politics, economies, and civilizations—that make up the international world community.

In the largeness of its appeal to the imagination, geography transcends even literature and history, for its story is the story of a mighty conflict of nature and man in every age and in every clime. In the dawn of nations

it shows us Nature all-powerful, and man wandering in steppe and forest at the mercy of summer's drought and winter's frost, his movements hindered and checked by sea, forest, mountain, desert, and fen, subsisting only by his own rude strength and self-preserving instincts, with but poor skill to till the soil, herd his cattle, and fashion implements to satisfy his wants. Where national spirit does not exist and civilization is weak, such is still man's condition, a slave to Nature's rule. But when nationality has struggled into being and strengthened itself in wise government, civilization rules Nature's forces with a strong and knowing hand. Forests are cleared, fens are drained, steppes and arid wastes are watered and fertilized, the wide spaces of the earth are opened to man's rule by rail and canal, the seas become the highways of the nations, time and space are annihilated by telegraph and cable, harbours, towns, breakwaters, dykes, dams, barrages, irrigation works, and all the great and vast organization and the numerous appliances of industry and commerce spring into being, and everywhere Nature is made to yield of her plenty under the coaxing hand of man's intelligence and the lash of his will. Such is the story geography tells in many and varied tones in every civilized land. It is no dry-as-dust story except when petrified in the pages of a textbook. Told by one whose imagination has been captivated by its wonders, it is a mighty epic of a mighty struggle, full of romance and adventure and of heroic strife, and with no less a theme than the destiny of man. If it be presented with insight and imagination, there is no subject that can be put before the pupil, that will give him so wide a perspective of man in his environment, determining it and being determined by it, that will so enlarge his mind with broad, fruitful and generous ideas, that will so uplift his imagination beyond the narrow circle of his everyday

field of vision, and, yet, that will bring home to him with such force his dependence on Nature and its resources, and on the activities of his fellow human beings in many lands. Taught in this spirit and with this aim, geography takes its place with history and literature as one of the great branches of human culture.

Of the innate spontaneous tendencies of the mind there is none so noticeable in modern times as the demand of the intellect to know the world in which we live, both for the power knowledge brings and for the pure intellectual satisfaction of knowing. It is the nature of the human mind to seek freedom. As the will demands freedom from external control and so gains moral power, so, too, the intellect demands knowledge to free itself from the trammels of the unknown in space and time, and, in doing so, gains power over the universe. It is this inquiring tendency, this spirit of intellectual discovery, that should, in this age of knowledge, be fostered in our schools and disciplined by their influence. The boy should be set on the way to a knowledge of nature, girt with the weapons of inquiry and infused with the spirit of discovery. The store of his information is no great matter. Power, not possession, is our end. The inquiring attitude of his mind, the freedom with which it ranges, the alertness with which it seizes the new, and the soundness with which it interprets, are the measures of his intellectual progress. The pupil, then, should in his small way be a discoverer of Nature's secrets, sharpening his perceptual intelligence in observing and experimenting on things, and strengthening the flight of his imagination by seeking to fathom the explanation of their being and condition. The study of nature is pre-eminently one of the main paths to intellectual culture.

Literature, history, geography, and nature knowledge, thus, make up the main studies by which the boy's

spiritual, social, and intellectual tendencies will expand and be led into the main stream of modern intellectual culture. Each of these branches of study has, however, its own appropriate means for the expression of thought and feeling. Language, poetry, music, drawing, painting, modelling, and practical action are the main modes of expression. Where knowledge is to be expressed, exactness and clearness in outlining truth are the essential qualities to be sought; where feeling, beauty should characterize the expression.

As we have seen, the inner life of thought and feeling and the outer manifestations of this life in some mode of expression should grow together; the inner life of the spirit giving richness of meaning to the outer form, and the outward expression crystallizing the inner meaning in a higher exactness and distinctness of truth, and in a clearer perception of its beauty. To secure and maintain this harmony of outer and inner growth, as the boy progresses in his studies in the various branches of culture, so should his power in the various modes of expression advance. Exactness in speech and with pencil, skill with brush and modelling tool, ease and dexterity in practical action are attainments as necessary to the pursuit of learning as is intellectual power, and without them, truth and beauty can be attained only maimed and shorn of a great portion of their glory. The arts of expression, then, are important branches of study for every school—no less important in the artisan than in the secondary school; though, owing to limits of time and to claims of greater practical urgency, they cannot be pursued in the former to so high a degree of skill or in so wide a scope as in the latter.

The second great branch of school pursuits includes the practical or "utilitarian" occupations that lead directly to the "bread and butter" work of life. For the

artisan boy, these must consist emphatically of manual pursuits, but they should be such as the play of intelligence and the spirit of true work raise above the plane of brute strength and mechanical drudgery. The essential aim of practical pursuits is to develop practical skill and the practical mind. Our artisans need limbs, hands, and fingers that are delicately and decisively responsive to eye and touch, senses that are keenly alert and observant of all relevant circumstances, and an intelligence that is swift to grasp, ready to respond with resourceful ingenuity, and decisive to clinch on the right moment for swift action. More than all else they need to be inspired with the spirit of true work which places work and workmanship above the price of labour. The practical pursuits for attaining these ends are many and various, and no school or group of pupils in a school should be confined to a narrow, restricted set of occupations. There should be wood and metal work of various kinds in the school workshops. In the open field and country there should be carried on such work as bridge-making, field telegraphy, signalling, fencing, digging, draining, gardening, and surveying. In connexion with these manual occupations there should be given practical instruction in the arithmetic, geometric, and drawing arts that are necessary for exact workmanship. All these varied practical pursuits will discipline the practical mind, strengthen the frame, and train the body to a varied practical skill. As for the spirit of true work, that is determined by the enthusiasm of the teacher, the spirit with which he shares in the work and leads the way, the uplifting force of his precept and example, and the power and sympathy with which he inspires in the whole school community his own ideal of work and workmanship.

Lastly, there are the physical pursuits of a school. These should appeal to and develop those impulses to

muscular exercise, physical play, games and contests that are so marked a feature of boyhood, youth, and early manhood, and are so characteristic of the virile races of temperate climes. The distinctive mark of all such exercises is the element of strife that enters into them. All of them are trials of strength, of skill, of wits, and of pluck. Physical play rests on much more than an impulse to physical exercise. Few boys care to walk for walking's sake, but they will run for miles in hare and hounds, spend themselves in a race, play football and cricket, fight, box and wrestle with a zeal that often carries them beyond their physical powers. It is evident that it is the element of physical strife that appeals to them. Further, their favourite contests are trials of more than strength. Brains and pluck, also, are factors, and pluck the most important of the three. Boys admire physical strength, but they admire pluck more. In a fight the sympathies of the circle of boys are always with the smaller and younger if he shows pluck, and applause is heartier still if he outmatches his opponent's strength by superior tactics.

It is obvious that the fighting impulse is spontaneous in boyhood, and that its strength gives games and contests a place in boyhood life that is unique. What use is the educator to make of this impulse, and to what end should he discipline it? In the first place, games and contests are a means to the development of health and strength. Played largely in the open air, exciting the heart and lungs to increased action, exercising freely the larger muscles of the body, they stimulate the whole organic system to healthy and vigorous growth, fill out the muscles, harden the bones, steel the sinews, and free the action of the joints.

They also train bodily skill and practical judgment. Skill is movement controlled by the senses. At first

the machinery for effective movement only exists in embryonic form, and movements are awkward, erratic, and ineffective. Adjustments are made only with great effort, after repeated trials, and with many failures. Practice, however, establishes the necessary nervous connexions between senses and muscles, so that, these working together automatically, movements become easy, free, quick, well controlled and nicely adjusted in space, in time, and in force to the effect intended. Games such as cricket and football, and contests such as boxing and wrestling give such a training in skilled movement—especially in the larger movements of the body and limbs—to a high degree and with great variety of movement. Further, such games and contests require the constant play of an attentive intelligence. A game is a succession of changes, almost of surprises. Each moment requires a fresh adjustment of aim, of plans, and of action; and adjustment must be immediate or it is useless. In this rapid adjustment, alertness of attention, coolness and quickness of judgment, and resource are the qualities of attentive intelligence that are brought out most prominently.

Lastly, games and contests are boyhood's discipline for the manly virtues. Being struggles for mastery they arouse all the pluck, endurance, and hardihood of youth. In no other way than by personal strife in which dangers have to be faced, blows encountered, and fatigue endured, can these virtues be trained. Twentieth century sentiment may seek in classroom instruction to find a softer discipline for courage, fortitude and hardihood, and indeed, instruction, when inspiring, will stimulate ideals, but unless these are realized in manly action they are apt to glow with a very unreal light. To attain the reality of virtue the boy must be fed on sterner stuff than duties unrealized and virtues only imagined. He must face danger,

encounter pain and blows, endure fatigue, and feel within himself the glow of courage, and the strengthening power of fortitude and endurance. So will courage, fortitude, and endurance be woven as lifelong lasting possessions into the fibre of his physical and moral nature.

Games and contests are most invaluable means of securing to boys a personal experience of human strife and of the reality of courage, pluck, endurance, and self-control in a way that is naturally attractive to them, and, hence, that awakens these virtues in a spontaneous manner. There is nothing artificial about them. There is no need of pretence or of compulsion. For that reason they are the more perfectly educative, for they enter most fully and naturally into the life of the boy. Moreover, when conducted under wise supervision, and where the school *morale* is good, the fighting spirit is disciplined in an atmosphere of honour and fair play, and these virtues are combined with pluck and endurance to form the ideal and the practice of "sportsmanship". Further, in social games the combative element is modified by the co-operative spirit. In cricket and football the boy not only struggles against an opponent, but he plays for his side, and, as further incentive to effort, to his own personal prowess is added the honour of the team. Where co-operative games are properly conducted he experiences the meaning of obedience to law and authority, unselfish play, loyalty, and esprit de corps, and to the desire to beat his opponent is added the wish, in friendly rivalry, to do more than his companions for the success of the team. Games and contests, then, should form part of the education of every boy. Without them boyhood is incomplete, and English boyhood unthinkable. They should form a part—and a large part—of the education given in every school, primary and secondary, in primary even more than in secondary.

Training physique, bodily control, coolness, readiness and alertness in adapting action to circumstance, pluck, endurance, self-control, spirited strife, and loyal unselfish co-operation, they form a preparation for the Manhood of Action that is given by no other form of school pursuit.

Briefly summarizing the pursuits of the school as outlined above, we obtain :—

(*a*) Culture Studies : Literature, History, Geography, Nature Knowledge.

(*b*) Expressive Arts : Language, Drawing, Painting, Modelling.

(*c*) Practical Occupations : Wood and Metal Work, Practical Work in the open field and country, and Practical Arithmetic, Geometry and Drawing.

(*d*) Physical Pursuits : (i) Games such as Cricket, Football, Hockey, Fives, (ii) Contests such as Running, Jumping, Boxing, Fencing, Wrestling, Tug-of-war.

CHAPTER V.

THE CULTURE STUDIES.

IT is not possible in one chapter even to outline the modes of teaching the subjects included in the broad scheme of culture studies sketched in the previous chapter and the expressive arts associated with them, nor is it desirable. A teacher should be left to devise the details of his teaching by his own ingenuity, provided he has grasped the spirit of his subject and of the teaching of it. He should, however, make clear to himself the nature of the mental and physical powers that are active in the appreciation and understanding of each subject he teaches, and of its application in practical life. We must content ourselves, therefore, with considering the main modes in which the power of self-learning can be fostered and disciplined, and opportunities made for reflective study to find a free expression in outward forms of activity of a valuable kind.

The study of literature, history, and geography is largely dependent on books, both textbooks and reference books. Pupils, therefore, should learn to use books as a means of learning. It is a sad reflection on the teachers and teaching of primary schools that the reading exercises seldom advance beyond reading aloud, and that little or no attention is given to a comprehensive and incisive grasp of the matter read. It is no uncommon thing for a pupil, when he is asked to give the substance of a passage he has read with pronounced elocution, to

hesitate, and finally declare his almost total ignorance of what he has been reading. This is not to be wondered at. Even with older people and educated people, reading aloud is a hindrance to thought, certainly to any serious reflective thought. To study a passage, one has to read it to oneself with attention on the meaning, and not distracted by the attempt to read with expressive effect. This form of reflective silent reading, so valuable as a means of self-learning, has received scant attention in primary schools.

Reading to oneself—or silent reading as it is more frequently called—is open to several grave dangers. The two most common are superficial skimming and reading merely to absorb. In skimming, as the words flit before the eye, so the ideas and images suggested by them flit before the eye of the mind. The mind does not fasten its grip on each essential feature or aspect as it presents itself, and bring it into a definite, clear-cut relation with the ideas and images that have passed before; and when easy flow of thought is hindered, the mind is too relaxed to unearth an obscure meaning or lay bare a hidden relation. Difficulties are skipped, and consciousness—one can hardly say attention—hurries on to find entertainment in more attractive fare.

Such desultory skimming is the result of reading when there has been no incentive to grip the matter and try to retain it. It is the natural outcome of reading light literature, and, the habit growing by what it feeds on, the mind becomes so enfeebled that it is incapable of attending to serious literature, which bores because it is not a kaleidoscope of quick changing sensational imagery. There is noticeable at present in our schools a somewhat strong tendency to encourage this superficial skimming by indulging pupils too much in light, fanciful, and adventurous literature in what is called recreative reading, which

is, too often, reading without any purpose except to pass a pleasant hour.

Light reading, like other forms of relaxation, has its place in life, but it has no very serious place in school. The reading lesson should not be mere amusement. It should hold the interest of the pupils and encourage desire, but it should also urge them to the task of thinking with care on each idea presented.

The corrective to superficial skimming is to follow every reading exercise by a discussion on the matter read, or by some exercise which will test the pupil's insight into it. The exercise may take the form of a comprehensive question to be answered, an essay to be written, a problem to be solved, a map to be filled in, or a diagram to be invented to symbolize what the chapter has stated in words.

Reading to absorb is another form of reading without thought. It differs from desultory skimming in that the impressions are retained; it is similar to it in that there is no reflection on them. The mind has been active only in retaining ideas, but not in analysing them. This form of study is very common among boys and, alas! among teachers too. Where it is not due to a dull intelligence or to laziness—and it is often due to these causes—it is the result of the teacher placing an undue value on information, especially on the information stored in a text-book. With the idea of filling the pupil's mind with information that may, perchance, turn out useful, the teacher sets his class to "get up" a chapter. They "get it up," or rather in, by going over it again and again, and in due course retail it back to the teacher—with certain modifications due to imperfect memory, mistaken intelligence, or too active imagination—in much the same form as that in which they imbibed it. Such study is a mere travesty of learning. There is no value in heaps of

miscellaneous facts whether they be labelled history, geography, or science, if they have not been grasped in relation to each other, to general conceptions that act as the organic centres of mental growth, and to purposes of interest and value that enter into life. Cramming the mind not only overloads it with useless lumber, but, in so doing, blunts it for intelligent thinking and the application of knowledge to action. The aim of all teaching, whether conducted orally or by the study of books, should be to lead the pupils to think intelligently about the topics presented, to discriminate between the important and unimportant, between the fundamental and the merely illustrative, to grasp ideas in relation to each other, to think conceptions in relation to examples of them, to compare and contrast facts so as to lay bare underlying principles, and to bring all knowledge to bear on the realities of the world and of human purpose. In a word, intelligence should be selective and interpretative and have regard to what is important in the growth of knowledge and its application to purpose, not merely absorbent of all and sundry.

Pupils, then, should be trained to study a paragraph sentence by sentence, phrase by phrase, and, if necessary, word by word, so that each subordinate idea is grasped in relation to the main thought of the paragraph and to the experience of the pupils that throws light on it. A dictionary should be the well-thumbed vade-mecum in all such work, and, when needed, an atlas too. Notes should be taken, but these should not be mere excerpts from the paragraph or a condensation of it. They should show by their wording and arrangement that the pupils have grasped the details in relation to the whole.

It will frequently be necessary for the teacher to go over a difficult piece with the pupils as an example of how study should be carried on. He should make use of dictionaries and maps as he wishes his pupils to use

them by themselves, and he should discuss each paragraph with them until he has led them to propose some form of expression—diagram, map, sketch, or verbal arrangement—that makes a striking and suitable summary of the matter studied. In all such exercises, however, the teacher should remember that the results produced by the co-operative efforts of class and teacher are often misleading, and may be no criterion of the power of each individual pupil to work independently. The chief value of such co-operative class exercises lies in the inspiration of the teacher, in the ideas that pass from mind to mind, and in the training provided in the method of doing the work. The power of self-study can be ultimately gained only by independent individual effort, combined with insistent and persistent criticism and correction.

The serious study of literature, history, and geography requires a room fitted up as a library and reading-room. The room should be provided with a varied assortment of good literature—prose and poetry—and with reference books and atlases for the study of history and geography. The books selected for the library should, naturally, be suited to the tastes and the intelligence of boys.

The library is a very necessary piece of equipment. It is not a luxury. It is to the study of literature, history, and geography what the workshop is to handicrafts, and the laboratory to the study of natural science. Without a library, how are the pupils to cultivate any interest in books and power of learning from them? How else are they to be taken beyond the sterile field of the class textbook? But someone asks: "Would you turn the pupils into the library to read what they like?" Certainly not. Pupils are not allowed to run wild in a workshop or in a laboratory. In these portions of the school they are given definite tasks to perform and inquiries to pursue. They work according to instructions,

and a master is present to inspire a spirit of work and to help those in difficulties. A similar method should be pursued in the use of a school library and reading-room. Any other form of conducting library work would be fatal. It is only too certain that desultory and promiscuous reading would not promote but hinder the development of a real power of self-study.

There is, of course, no one set mode of conducting library study with boys. Teachers should use their ingenuity in inventing a variety of ways by which pupils can exercise their initiative in inquiry. Whatever be the various plans adopted, each should encourage the pupils to independent work in consulting authorities, source books in history and geography, atlases and the like. As long as the pupils are disciplined to some kind of independent study, and trained to use in an intelligent way books other than textbooks, the precise details of the method matter little. These should be determined by the ability of the boys, the peculiar genius of the teacher, and, of course, the supply of books available.

At the same time means should be devised for preventing desultory, aimless reading. There should be no carte blanche to roam at large over a limitless field and dip casually into a large number of books. In library study the pupils should always be engaged in pursuing some definite and more or less restricted inquiry. The topics chosen should arise out of the class teaching, and should supplement it. The teacher should select the topic for each pupil or group of pupils, and should suggest the general lines for pursuing the inquiries and the reference books to be consulted. Rough notes should, of course, be taken during the reading. These should be worked up afterwards into essay form and illustrated by diagrams, sketches, maps, and any pictures the pupil may be able to cull from magazines and similar sources.

Finally, the results accomplished by a class of pupils working in this way should be brought into definite relation with the general class work in the subject, and made the basis for some class lessons in which the matter obtained is systematically organized and learnt by the whole class.

As an example of the method of pursuing a topic by the independent study of reference books, let us suppose a class is beginning the consideration of the geography of India, and learning some of it on the lines suggested above. The first lesson should be a class lesson to examine the relief of India in relation to the surrounding continent. An orographic map of Asia is indispensable for this purpose. The examination should be conducted with a view not so much to learning facts about the geographical areas into which India is seen to be divided, as to opening up a number of fields of inquiry. Let us confine our attention to the mountain barriers of the North and North-West. The inquiries that might, by tactful questioning, be unfolded are:—

1. What is the nature of the North and North-Western Highlands, their extent, the river drainage arising from them, the erosive action of the rivers, and the consequences of this action?

2. What kind of frontiers do these barriers make, what are the weak positions in them, and what fortresses, railways and roads have been constructed to defend them?

3. What are the climatic conditions and vegetation of the countries beyond the barriers, and how do they differ from those of the Indo-Gangetic plain?

4. How will the climatic conditions and vegetation affect the occupations and social organization of the peoples inhabiting these regions?

5. What trade and trade routes are there across these

barriers to Western Asia and Europe, and what are the terminal and intermediate trade towns?

These inquiries having been tabulated, the teacher apportions them amongst the class, and to each pupil—or rather group of pupils—he gives general directions as to the books to consult, the chapters and maps to study, and the manner in which the results of the work should be expressed in summarized notes, maps, and sketches. The pupils then spend a number of lessons in the geography room, each group of pupils working out its allotted problem. The teacher is present so that he may be consulted by any pupil who needs advice or is in a difficulty, and he should pass round from group to group to see how the inquiries are progressing, and to stimulate initiative and ingenuity by leading questions. At the end each group condenses its results into a summary, illustrated by large coloured maps, sketches, and pictures, if any have been procured. A class meeting follows to bring together for the benefit of the whole class the results of the many inquiries and to weave them into a coherent system of knowledge. Each inquiry is dealt with in turn. A selected pupil from the group reads his summary and explains it by reference to his large maps, sketches, and pictures which are exhibited to the class. The teacher then encourages pupils in other groups to ask questions of the group who worked out the topic, and he himself questions the group and discusses the topic with the whole class so as to bring out essentials. The other problems are then dealt with in a similar way. Finally, the whole class spends a lesson in making suitable summaries of the whole set of inquiries, and drawing suitable maps and sketches to illustrate them.··

To stimulate the pupils to a high standard of work, and to encourage them to question and cross-question each other, it is a good plan to introduce group rivalry.

Marks should be awarded for the most initiative, the most suggestive summary, the best maps, etc. Marks, too, could be awarded for questions and answers in the combined class work at the end, a mark being given to the questioned for every question successfully answered, and to the questioners for every question not successfully answered. By some such means, rivalry may become very keen, and the pupils may reach a high standard in cross-questioning each other, a process which is very conducive to intelligent thinking. It is a good plan, too, to bind together all the summaries, maps, sketches, etc., that have been made in connexion with the topics studied, and to pass them round the class for examination.

One of the best tests of the training the school is giving in self-education is the interest the pupils take in various kindred pursuits out of school. Does the training in literature lead the pupils to read at home? Does the teaching in history and geography induce the pupils to take up the study of local history and geography? If not, then the school is developing an interest, if it develops interest at all, of an artificial kind that has its roots in classroom conditions and only blossoms into classroom activities that will in all probability come to an end when the pupil enters the wider world after school. It often happens, however, that, even when the school training is most stimulating, the home influences are not conducive to out-of-school study. It behoves the school, therefore, to do something more than to leave the out-of-school studies to chance.

The school should, as we have mentioned before, provide an organization for stimulating and directing out-of-school studies in a definite way. It would not be well, though, to make them compulsory. Rather should the school create the opportunity, initiate and maintain the

organizations for out-of-school pursuits, and do all it can by influence, example, and school tone to bring its pupils voluntarily to make use of them.

The most suitable organizations for developing and directing out-of-school interests we have seen to be school societies. For literature, a reading circle should be formed to read and discuss boys' fiction and, sometimes, even more serious works than fiction. It should meet once a week during the winter months. For out-of-school geography, a society should be formed to keep records of the local weather to make collections of local rocks, and to do some local surveying. Local historical buildings form most attractive material for an historical society to study. In almost every district there are old houses, a mediaeval church, abbey or castle, old place and street names, and documents relating to buildings, people, land and events. A good deal of original work of a simple character can be done by boys of from twelve to fourteen years if once they are made keen. An inspiring teacher who knows how much to do for them and how much to leave to their own initiative, how much to tell and how much to suggest, is a god-send in giving life and soul to a school society.

It is not to be expected that the work done by these school societies can be of any very high order. After all they are semi-recreative. Teachers must be content if they create an interest, and begin the habit of voluntary study. Often the interest of the pupils will need to be maintained by more lively means than study. Scenes from plays can be learnt and acted in costume. An historical pageant can be prepared and exhibited. Prizes for collections of rocks, plants, pictures, maps, sketches, etc., will stimulate competition. An annual occasion can be instituted for exhibiting the collections and the work done, and for performing little plays, and

exhibiting pageantry and historical tableaux. This annual or bi-annual event will be an opportunity for bringing parents into touch with the school and its societies, and will have the effect in many cases of supplementing the school stimulus by that of the home. Finally, it should be remembered that the societies will languish and die, or maintain but a moribund existence, unless the teachers encourage them with their presence. The formal school manner of the teacher should give place to a more friendly, free, and sociable tone. He should put the pupils at their ease so that they will talk and discuss freely. He should suggest modes of bringing variety into the proceedings, and every now and then work up occasional excitement by some special effort.

The above are some of the more important ways by which self-learning in literature, history, and geography may, to some extent, be encouraged with pupils over twelve years. There remains for us now to consider modes in which the knowledge learnt in these subjects can find expression in outward forms, forms that will be of value in cultivating a higher appreciation of truth and beauty and in developing a power for practical action.

Much ingenuity has been expended of late in suggesting various ways by which the literature and history taught in school can be expressed in handwork and in action. In many schools pupils of a considerable age may be seen making—with cardboard, straw, and other light materials—imitation miniature tapestry, coracles, tents, armour, weapons, and other things mentioned in history and in fiction. Also scenes from literature and history are dramatized extempore by the pupils. After a story has been taught or read, selected pupils are required to come in front of the class and act the scene with words, gesture, and action appropriate to the occasion, their imaginations clothing the prosaic desks and

chairs of the classroom with all the glorious trappings of history and romance.

In support of such dramatization, it is urged that not only do the actors realize in a more vivid and personal way the experiences and feelings of the characters, but that the onlookers, too, share in the fuller appreciation. Further, the advocates of these methods point to the value of the action songs, action recitations and story games of the kindergarten as a reason for their use with older children. Some even go so far as to hold that the methods of teaching in the upper school should be organized more than they are on kindergarten principles. To any such suggestion we cannot but offer a definite and absolute negative. Whatever may be said for dramatization and handwork, in themselves, in connexion with literature and history nothing whatever can be advanced that is psychologically sound in favour of the introduction of kindergarten methods into the upper school. The whole aims and methods of teaching in the upper school should be different from those of the kindergarten, since the whole outlook of the older pupils on knowledge, on the world, and on life is radically different from that of infants. The infant's mental horizon is limited by his sensations, and his activity by his spontaneous impulses. He cannot entertain purposes beyond the present and very immediate future. His outlook is wholly and unconsciously objective, since the instinct to self-consciousness is as yet unborn. The older boy, on the other hand, has entered a stage of development in which his consciousness of himself and of his relations to others and to the world, is determining in a marked way his mental development. He has ideas about his future career. His imagination, unlike the infant's, is controlled by his perception of realities. In everything that determines his actions and his attitude to knowledge, to

people, to work and to life, he is a totally different being from the infant. He is on the threshold of life with the door to independent thought and action opening wider day by day. The infant and child are, as yet, quite content to play in their little enclosed garden, happy with their sensations and their fancies, and oblivious of the stern realities of the world and the future.

It follows, then, that certain forms of play which make the infant happy, and are even good fun to the small boy if his elders are far away, appear ridiculous and contemptible to the older boy. The infant can, oblivious of realities, play at being a bird, an animal, or a tree; the small boy finds great fun—though whether any instruction is doubtful—in pretending to be King Alfred burning the cakes. The older boy will only play at something serious, or when realities take the place of stage properties. As a boy scout he will play at soldiers, but the drill must be serious drill, the patrolling real patrolling, and there must be a real camp, real woods and fields. He will play at Robinson Crusoe, but he must have a real island, real water, and real rafts. He has no sympathy with the foolishness of making believe an upturned table on the nursery floor is a raft, or pretending to be King Charles when a paper crown, a cardboard axe, and the classroom chair are the nearest approach to the reality of that memorable thirtieth of January.

To introduce the kindergarten spirit into the upper school would not only be foolish, but it would be actually harmful. Its effect would be to arrest development and not to assist it, to keep the boy shackled to the ways of infancy when education should be preparing him to face the world with a grip on the realities of life. A boy from twelve to fourteen years should not be playing at schooling. His work should be serious work. He should not be amusing himself with phantoms of tinsel but honestly

endeavouring to get to the heart of things, grappling with ideas, and discovering their application to the important purposes of life.

The forms of outward expression, therefore, to be encouraged in the upper school should have value in aiding the pupil to grasp the inner meaning of a thing and to appreciate all that is true and beautiful in it, as well as all that is practical and useful The expression, too, should reach a sufficiently high standard of excellence as a representation either of truth or of beauty. Expression is art, and the boy of the upper school is old enough to learn that art is not amusing play, but that pervading it should be the spirit of true work and perfect workmanship.

By either of these criteria extempore dramatization and the making of paltry imitations of things stand condemned. They give only the outer semblance of reality; the inner meaning of history and literature is warped and distorted by them rather than revealed. As presentations of truth and beauty, they fall far short of anything that should be permitted outside the nursery and the play-room.

On the other hand, the acting of scenes from such plays as "Julius Cæsar," "Richard the Third," and the "Merchant of Venice," or the presentation of a dramatized version of a story that is true in spirit and beautiful in form, is not open to the above objections. These are real literature. They are art of the highest kind. To train a pupil to act such scenes is on the same high level as training him to paint a beautiful picture or model a beautiful vase. It helps to bring him into that inner chamber wherein dwells the spirit of the beautiful. But between this and extempore dramatization of historical scenes there is fixed a gulf as wide as that between a child amusing itself in making mud pies and a pupil lovingly trying to model a Greek vase.

Acting, therefore, is educative as all real art is educative; but it must be real art, and not the art of the nursery. And it must be prepared for in an understanding and loving way. The play or the historic pageant should be studied, and the pupils should enter with sympathy into the personality of the characters and the idea the play or pageant expresses. In their presentation of it the pupils should aim at a standard of elocution and of expressive gesture and action that demand not only real feeling and deep understanding, but considerable training in these expressive arts.

As with acting, so with modelling and needlework; they are educative when a high standard of art is held. The careful and painstaking attempt to make a piece of tapestry after a mediaeval model or to mould a vase after a Roman design is highly valuable, not, however, because these are historical illustrations, but because they are things of beauty. In the same way the drawing and painting of arms and armour, heraldry, Old English architecture of church, abbey, castle, or manor, are valuable because they are forms of the expression of truth, and a high standard of workmanship can be exacted. Shoddy imitations in cardboard and straw in the case of the older pupils cannot be too strongly condemned.

There is another form of expression that is appropriate to both literature and history, and that is music. Unfortunately, many a good melody is wasted on foolish words, and many a fine poem is ruined by sorry jingle. But when good music is wedded to good verse, the pupils are uplifted to a more exalted and intense appreciation either in hearing it or in giving a fine rendering of it. Similarly, patriotic feeling is intensified by the singing of patriotic songs. No boy can sing "Hearts of Oak" or join in a spirited rendering of "Rule, Britannia" without feeling within himself the English spirit stir more proudly

and stoutly, and, while under that inspiration, being more ready, to sacrifice himself in the service of his country.

The forms of expression that we have considered so far have all been symbolic. They have had for their end the representation of truth and beauty. It is important, however, to seek some ways by which literature and history can in school be brought into touch with practical life in some form of practical action. There are no distinct and definite ways by which the thought of literature finds such expression. The influence of literature should be on life as a whole. Its mark should be on all thought, feeling and conduct, refining and ennobling them. History, however, appeals to a more limited set of impulses and to a narrower part of life. Its aim, as we have shown, is to strengthen the impulses to corporate life and centre them round the idea of nationality. As has been already suggested, symbolism should be used to materialize and bring to a point the patriotic impulses. On occasions of national rejoicing or mourning, saluting the Flag, singing the national anthem, joining in a prayer for King and country should be solemn and serious rites. Much, too, is to be said for the institution of national days when some important aspect of national life can be made to appeal to the imaginations of the pupils in an emphatic and solemn way. Christianity has its Christmas, Easter, and Whitsunday, and by means of them and other feast and fast days the fundamental ideas and sentiments of Christianity have become woven into the texture of the people's habits and customs. As long as Christmas day shall last, the memory of Christ's birth can never die. If the Church gains so much from its Christian days, as much would the nation gain from national days.

There are at least four aspects of national life that

merit a special occasion, and each of them should be associated with some national ideal. These are: The Empire, and the unity of our race; Our Country, and national service; Parliament, and freedom; Municipality, and healthy and prosperous citizens in healthy and prosperous towns. There would be a great strengthening of national feeling among the youth of the nation if four such national days were used to inspire our pupils with the ideals of our race and country, and to stir their hearts with the deeds of those great Englishmen who have given their lives nobly in the service of empire, country, freedom, and humanity. Our great heritage in noble deeds and noble lives would then be brought before every pupil every year, on occasions and in a manner that would fill them with reverence for their country's past and pride in the name of Englishman.

Such a form of outward expression is still of the nature of symbolism. It differs from the modes previously discussed in that it appeals directly to the national idea and to corporate feelings, and stimulates an ideal of national service. We are still left to discover some form of practical action in which boys can express the national feeling and ideals that are growing within them. Whatever form it takes, it should be based on corporate instincts; it should raise these instincts to the national plane; it should make an appeal for service. Of all the organizations that have been instituted for boys and youths, none seems to fulfil these conditions so admirably as the national organization of Boy Scouts. Its ideals are king and country, manliness and duty; and its methods are most practical.

To propose to institute a corps of Boy Scouts in connexion with every school may to some seem foolish, to others chimerical. To those, however, who desire national sentiment to be something more than a vapid

sentimentality, and who realize that verbal instruction dissociated from practical duties is a hollow mockery, such a proposal seems the only practical way of encouraging a patriotism that will wear. If the pupils from the nation's schools were bound together in a national movement, they would feel that they belonged to a corporate body national in its width, they would imbibe from its spirit the ideals of patriotism and service, and they would be led to strive in many practical ways to "be ready" for the duties of manhood and citizenship.

An examination of the organization of the Boy Scouts further reveals the fact that its founder is a thoroughly practical educationist. He appeals to every great group of the spontaneous instincts of boyhood, and seeks to discipline them for national service. He uses the corporate instinct by making the patrol the unit, but he keeps its numbers small so that the ties of membership shall be real and strong. Each patrol trains and works independently, in order that the group consciousness may be intensified, but on special occasions many patrols combine for concerted or competitive action so that all realize they are part of a great brotherhood. He places the older boys in positions of trust that the sense of responsibility may grow in them, but, though obedience is demanded from the younger, each has his own peculiar office and duty in the patrol that he may be stimulated by pride in holding a special post. He uses rivalry in individual and social games and contests to encourage keen initiative, but he often requires scouts to act independently to train them in self-reliant action. He appeals to the boyish ideals of romance and adventure, but, just as the mediaeval church disciplined the feudal spirit of war and adventure to the heights of knightly chivalry, he, too, disciplines these impulses to thoughtfulness for others, self-denial and honour, and so

weaves a glamour of romance around the commonplace virtues. He does not disdain secret signs, badges, mottoes, flags, ceremonies, and symbolism of all kinds, for he knows they are dear to the heart of every boy, and serve to give a definite outward form to inner sentiments. In every way he makes his training an appeal to the spontaneous impulses, interests, and ideals of youth and, setting one group of impulses against another, he disciplines them in a self-controlled, evenly-balanced and manly mould.

So educationally sound is the whole organization and mode of training that, could each school in the country form its own corps of Boy Scouts linked up in a national movement, the solidarity of future national sentiment would be assured. The Boy Scouts would be the boys of the nation organized to train themselves to be the men of the nation. Whether such an ideal will ever be realized it is hard to say, but if a strong, disciplined, manly sentiment of nationality, that will find an outlet in national service, is ever to be developed, it will only be through such an organization and training as those of the Boy Scouts.

Geography, dealing more with physical conditions than with spiritual and social things, lends itself readily to forms of outward action and expression. There is always at hand a portion of the earth's surface the relief, drainage, climate, vegetation, geology, population, and industries of which can be investigated at first hand, and the resulting knowledge expressed in model, map, or other graphical form. The exercises of practical geography, then, will consist in surveying, measuring heights and distances, plane tabling, map and model making, regular daily observations on prevailing winds, rainfall, temperature and barometric pressure, investigations into the fall of a stream, its rate of flow, the variation in its current

due to rocks, banks and obstructions, the effect of eddies, the amount of matter carried in suspension and similar problems, inquiries into the effect of shelter, slope, and soil on the local distribution of plants, and the examination of the geological strata of the district in railway cuttings, quarries, and exposed hill-sides. Such practical work will occupy a good deal of time in field work, and in mapping, modelling, and graphical expression in the geography workroom.

The use of maps is most important in the teaching of geography. Maps are the language of geography, and if pupils are to learn about foreign countries at second-hand, that language should be so developed as to express the greatest variety of geographical meaning. The old-fashioned political map, useful for locating position, has too small a geographical vocabulary to be of much use in teaching anything but position. A series of maps representing all the main geographical conditions of each country is indispensable. The series should include an orographic map showing relief in colour, maps respectively for rainfall and winds, temperature, natural regions, vegetable products and agricultural and pastoral industries, mineral resources and manufactures, density of population, and communications. These maps express to the eye by geographical symbolism the varied geographical conditions of a country, and much of the learning of geography should consist in the intelligent interpretation of the various maps, and the grasping of them in relation to each other. Pupils should be trained not only to read this map language, but also to write it with the ease and confidence that only comes from practice. Hence, the geography notebooks of the pupils should consist mainly of series of maps variously coloured and labelled, with the briefest possible verbal summaries placed alongside.

For a pupil to grasp with any confidence the way a contour (or orographic) map expresses the relief of a country, he should have made a model from such a map. Many teachers advocate the rapid modelling by the pupils of every country taught. This is neither necessary nor desirable. Every time a child reads a word in a book it is not necessary to show to him the thing, action, quality, or relation for which the word stands. He must learn to think of things by means of words without the things being present. So, too, with the relief of a country. After he has once become familiar with the meaning of a contour map, it is unnecessary and undesirable that he should use the further medium of a model. It is curious that it does not occur to such teachers when they are using rainfall, temperature, and vegetation maps, to materialize these by producing samples of rainfall, temperature, and vegetation. In these cases they are content to rely on memory and imagination.

In the modelling by the pupils of the relief of a country the greatest care should be taken to attain a high standard of truth. Many of the reliefs modelled by pupils, especially those smaller ones modelled with flour and salt on cardboard, give so false an impression that nothing but harm can result from making and using them. The author can vividly recall one such model shown him by a proud teacher as a specimen of the practical work in geography of his school. The model was of the surface of India. The Himalayas and the mountains of the North-West Frontier were represented as single high ridges rising from a uniformly level plain. The Indus rose behind the Himalayan ridge at the same level as it flowed into the Indian Ocean. The Deccan was a flat plain at sea level, bordered by an unbroken ridge to the west, and a broken one to the east. The rivers of the Deccan, according to the model, must have

flowed slowly and uninterruptedly across the intervening flat country. There was no single feature, except perhaps the shape of the coast-line, that was not as false as false could be. It was a perfect example of what pupils should *not* be permitted to do.

The most valuable exercise in modelling is the building up of the relief of a country with sheets of thick cardboard, cut with a fret-saw to the shape of successive contours. The work requires close attention and careful manipulation to secure accuracy, and takes many hours to complete. The construction of one, therefore, should be divided among a number of pupils. In doing this work the pupils will gain so thorough and intimate a grasp of how a contour map expresses relief that there will be little need for them to repeat the construction often. Each pupil should have been instrumental in making such an exact model at least once in his school career. There will be little fear, then, that a teacher will not have a model of every important geographical area to aid him in his teaching. The models so made should be used at times side by side with the orographic and other special maps. The river drainage, the lines of communication, and the positions of towns will, in this way, be more intelligently and readily realized.

The teaching of nature knowledge stands on somewhat different ground from that of literature, history, and geography. The latter has to rely very largely on books, and, as we have seen, the school needs to give its pupils a training in the use of books. It must be realized, however, that indirect second-hand experience must rely for the elements of its construction on personal experience. For example, a sonnet on spring would be but sorry stuff for pupils, did not the teacher lead them to recall, in an intense and vivid way, their personal experience of the joy they themselves felt on the return of warm

sunshine and soft west winds, and their delight in the opening buds and spring flowers and the fresh green tints of the trees and fields. In the study of local history and geography, too, the methods of teaching should depend largely on personal observation and experiment. In the study of nature, however, the mind is wholly transferred from books direct to nature itself.

The key-note of the learning should be the intelligent observation of natural phenomena. But what is intelligent observation? In answering this question, we must utter the same warning that was given with regard to study from books. Learning by observation should be neither casual, desultory looking, nor the absorbing and memorizing of perceived facts. Learning by observation does not, in essence, differ from learning from books. In the latter case the data are given in words, which have to be interpreted as images and ideas; in the former the facts are given through the senses. In both, the learning should go beyond the reception of what is presented. Intelligence should work actively on the impressions, comparing, contrasting, analyzing, grasping similarities and differences, weighing, and judging, and so weave the facts—the raw material of knowledge—into a system that goes in its conceptions and conclusions far beyond the facts themselves.

The pupils' attitude to the learning should be one of inquiry. The intelligence should set out to solve some problem; it may be to know exactly what something is, or the way it came into being, or the changes that are taking place in it and the conditions that influence the change. In all inquiry, intelligence goes beyond reception to selection and interpretation. It selects from the impressions that are presented to consciousness just those that appear to bear on the inquiry in hand, and passes over those that it cannot bring into relation with it.

Often intelligence has to guide the senses to an active search for the material it requires by anticipating what should be there, and what the senses have failed to perceive. In anticipating impressions, and in guiding the search for causes, the intelligence operates by a continuous and progressive series of hypotheses, suppositions, and possible explanations. It takes jumps, partly justified by what it has already perceived, and to be still further justified by what it discovers by so doing. It argues such and such a thing might or ought to be so and so, and it directs the senses to discover if it is so and so.

The nature of the process will be grasped more clearly by considering an example of it. Suppose the problem presented to a class is, the use of a bulb to a plant. Let a hyacinth be taken as the specimen to be studied. The class examine a hyacinth growing in a bulb vase, with its stem, leaves, and flowers complete. Comparison with plants growing in the soil brings out the question and hypothesis: whence does the hyacinth get its nutrition? Can it be from the bulb? Comparison again with seeds germinating in damp sawdust or on damp blotting-paper suggests that here, again, are instances of a plant growing seemingly without external nutrition. Does the nutrition come from the seed? Memory supplies the fact that man and bird use seeds and bulbs for food, hence these are nutritious to higher animals. Here, at least, is supporting evidence. Let the class then take the supposition, "the hyacinth feeds on the bulb," as a working hypothesis. How can they test it? Only by arguing to what will happen if it is true. If the plant feeds on the bulb, then, as the plant grows in size, so must the bulb decrease in substance; a conclusion that can be tested by watching a hyacinth grow, and examining from time to time the size and appearance of the bulb.

The above example illustrates in brief the essence of the method of perceptual inquiry. It is the method by which a detective tracks a criminal, a doctor diagnoses a disease, a Red Indian tracks an enemy, a scientist advances knowledge, and, to bring our case home to the theme of this book, by which a workman should use his initiative and ingenuity in solving the problems that are constantly occurring in his daily work.

A word must be said on the scope of nature knowledge in the primary school. The course should aim at explaining the phenomena of nature in town and country that are familiar to the pupils. Further, it should extend the range of their observation to important phenomena that usually escape their attention. Nor should we be afraid to include in the course inquiries into those processes of which man makes use in his industries such as, for example, the making of lime from limestone and the softening of iron by heat. Many of the phenomena of nature and of the processes of industry are explained by a knowledge of chemical and physical laws, and certainly pupils, on leaving school, should have made some acquaintance with the simpler aspects of the chemistry and physics of water, air and common earths, combustion, rusting, solution, evaporation, condensation, the effect of heat on the volume, ductility and hardness of common metals, and the properties of common earths and metals and the effects of heat, air, and moisture on them. All of these are important in the explanation of the common occurrences of the town and country and of the more common processes that man turns to use in his industry.

Inquiry into the structure, habits and habitat of living plants and animals should, however, be an important part of any scheme. The processes of life and of adaptation to environment that are revealed by an inquiry into plant and animal life, are so wide in the range

of their application, and have such important bearings on many of the social problems that are agitating men's minds to-day, that no scheme of education can be a liberal one that does not arouse an interest in, at least, the simpler aspects of them. Moreover, the study of living organisms opens out an inexhaustible field of entrancing problems that is free to anyone who can spare an evening, or an afternoon, to walk into the country. Chemical and physical problems require for their study apparatus and laboratories, but the country-side is there for all. These studies, too, are prone, even with the professed student, to tend to industrial application. The study of living nature, on the other hand, is so little utilitarian, so purely disinterested, that the pursuit of it arouses the pure, intellectual joy of knowing for knowing's sake, a joy that we would fain instil into the pupils of our working-class population. We do not in any way seek to hide from ourselves that education has its utilitarian aspect. The aim of this book is to emphasize that aspect. Still less, however, do we seek to hide from ourselves that "man does not live by bread alone"; and of all studies, the sympathetic study of plants and animals inspires in pupils an intellectual joy of like kind to their joy in romance and adventure.

Even were these reasons for the inclusion of the study of plants and animals inadequate, a fully sufficient reason would be found in the effect that a *real* study of living nature has on the outdoor habits and interests of pupils. Any *real* study of nature cannot be carried on in the classroom or in laboratories alone. These are of little value, except as secondary aids in the teaching. They should render more methodical, and concentrate more systematically, the study of nature in the fields, commons, hedges, woods, and streams of the country.

Further, the study of plants and animals in the country

should be but incidental to roaming in the country, and interest in them should be but part of a larger delight in all the sensations the country pours into the mind. A youth has missed a great experience that no books and no schooling can make up to him, if he has never responded to the invigorating air of the country, to its wide expanse of sky and earth, to the smell of its woods and fields, to the sight and sound of running water, to racing clouds and blowing winds—experiences that are enhanced by the sense of freedom in his whole being from the restraints of the houses and streets of the town. As we rise refreshed in body from a bath, so we come back refreshed in mind from a day in the woods, or on the moors, or strolling along quiet country lanes. Nature's enchantments, as Emerson says, are "medicinal, they heal and sober us. They are plain treasures, kindly and native to us. We come to our own, and make friends with matter, which the ambitious chatter of the schools would persuade us to despise. We never can part with it; the mind loves its old home; as water to our thirst, so is the rock, the ground, to our eyes, and hands, and feet."

Nature educates in some such way as a great cathedral, a grand oratorio, or a great personality educates by its mere presence. We cannot say what we have learnt from them. We may have learnt nothing that we can put into words. They have filled our minds to the exclusion of all else; they hold us chained till our senses are satiated; they lift us for the time beyond all common things. And when we turn with reluctance, even sometimes with relief, to workaday affairs, we know we have seen a vision, that we are better and happier for it, that the common things of life will never again be quite so common as they were.

Of all children, the town child, spoilt by the excitement

of the town, needs most the medicinal education that Nature gives to mind and body. There can be no more valuable result from any school pursuit, than that of bringing the town child at frequent intervals under its influences. The aim of nature teaching should be to form such habits, and to create such interests, as will lead the pupils to turn instinctively to the country for their recreation. After all, it matters little how much formal knowledge of plants and animals a pupil gains; but it matters much to the nation whether the children of its industrial population are to be brought up with senses cramped by the bricks and walls of a town and the smell of smoke and the streets, or whether they are to have in them interests that will take them on evenings and Saturday afternoons into the country, there to re-create in themselves the freshness and elasticity of body and mind that town life tends so much to destroy.

Nature studied in the country, then, should be the primary mode of learning, and it will be well if the teacher does not keep the senses of his pupils too much strained on the small things, but permits them to drink in the larger sights and sounds. The records of the excursions jotted by the pupils in their notebooks, largely in the form of rough sketches, must, of course, be systematized by class-room teaching; and here there is need for nature to be brought into the classroom. The dead leaf and flower, however, hardly ever should be found there. The plants and flowers required for classroom work should be grown in the classroom in pots and boxes. There should, too, be gauzed boxes for chrysalids and caterpillars, a herbarium for insects, and an aquarium for water plants, water insects, and fishes. As life develops before the eyes of the pupils, as they see the seed germinate, the buds unfold, the flower blossom, the fruit form, the caterpillar weave its cocoon, the chrysalid burst forth into a perfect insect, the

ways of Nature are continuously and progressively unfolded to their wondering gaze in a way that inspires them to a loving study of her marvellous works—a study quite impossible when the staple examples used of Nature's work are the dried specimen and the gathered flower.

Finally, we must ask in what forms of practical work the study of nature can find a valuable expression. Examining specimens, drying and mounting them, sketching and colouring, are valuable forms that may be carried on in the classroom. A more practical and active form is to be found in school gardening. The school garden, where it exists, is far too often a place where the pupils learn how *not* to keep a garden. If a garden is to be of value to the pupils, it must be looked after in a serious manner. There should be no dilettante pottering, five minutes at one time, and five minutes at another. It should be regarded as a pursuit requiring as much time, attention, and teaching as does woodwork. A garden should not be attached to a school because it is the latest fad, and all the inspectors are recommending it, or because it sounds so nice to have a garden. A garden may be attached legitimately to the school for either of two purposes. First, it may be used as an adjunct to the classroom study of plants so that the pupils can study the growth of plants from growing specimens. As such, it is only a larger flowerpot or plant box. Secondly, it may be used to give pupils a practical knowledge of and a practical skill in gardening. It is for this latter purpose it should be attached to the artisan primary school. If gardening is ever to be pursued by working men as a recreation after working hours for profit and for pleasure, the interest and knowledge and skill necessary should be gained when young. How many a man makes no use of a garden or allotment because there has been aroused in him no

interest in gardening? How many a man labours in his garden fruitlessly because he never gained any knowledge of or skill in gardening, and knows not where or how to learn? On the other hand, how many a man is there who finds recreation and solace after the labours of the day in the cultivation of flowers, and takes a pride in growing roses or sweet peas or carnations larger and finer than those of his neighbour, and, if he saves money by growing vegetables, should we not approve his thrifty mind? It is for the practical end of training pupils to keep a garden for pleasure and profit that we would attach a garden to the school.

For this purpose the garden plot must be large. It need not be near the school buildings. A plot in the nearest allotments will do quite well. It will not harm the pupils to walk half a mile away from the school buildings rather than towards them. If they arrive half an hour late, well let them stay half an hour beyond the school leaving hour. There is no fetish in the hour of four, and the pupils will be in the open air and exercising their limbs. They will not suffer from brain-fag or nervous exhaustion in the school garden. The pupils should themselves dig, drain, and trench the ground, prepare the soil, plant the seed and seedlings, tend the plants, and do all the very varied work of the gardener throughout the whole year. To do this thoroughly, it is not possible for every boy in the school to be attached to the gardening class. Several groups of pupils could pursue the course throughout the year, and at the end give place to several other groups. The training must not be made desultory or casual by too many groups, and too many pupils in a group, working on a small plot. It is better to train a few thoroughly, than many indifferently.

CHAPTER VI.

THE PRACTICAL PURSUITS.

THE practical pursuits of the primary artisan school should develop in the pupils practical skill, practical intelligence, and a sentiment of pride in good workmanship. These are the qualities the artisan needs to fit him for his economic place in society. These pursuits are, first and foremost, "bread and butter" pursuits. We do not seek to hide their utilitarian object, nor to cloak it with any high-sounding educational "terminological inexactitudes". Their intention is to train those qualities of body, brain, and character that are required in the work of earning a livelihood. We openly avow that we seek to turn these artisan youths into good carpenters, cabinet-makers, plumbers, mechanics, bricklayers, and the like. Why should we, because we write in the sacred name of education, be ashamed of it? We cannot purge real life of the utilitarian; nor would we if we could. We believe in work—hard work and useful work. It makes men of us. It sharpens our wits and braces our will. It gives us a purpose in life that can be neither denied nor forsaken, and brings out all those fighting qualities of manhood by which the working races of the world have proved their superiority in the world. Work, whether for a living, for ambition, or, highest of all, for the joy in seeking perfection, is one of the world's great educators. St. Benedict realized this when he prescribed it as a path to holiness. We have already admitted its

educative value in a previous chapter,[1] when we advocated the joiner's bench, the contractor's yard, and the engineer's shop as educative institutions, capable of training the youth after schooldays in a way impossible in the school. For in the employer's workshop, work is real work. There it is no playing at work as it often is at school. It is performed under the stern conditions of economic pressure, and hardens the character and gives a truer edge to skill.

We have no sympathy with that pedagogic snobbery that can perceive the educational only in the economically useless. Do not let us worship the useful unduly, for life has other and higher ends than it. But let us honestly face modern life as we find it. "He that shall not work, neither shall he eat," and the first necessity of a working man is to earn the wherewithal to provide food and shelter for his wife and family. Of what use is his schooling to him if he is flung on the streets without the power of doing a single useful thing? He may write and read and spell, but Political Economy holds these of little account. But, it will be said, we should not train pupils for any trade; we should train intelligence, character and manhood. By all means let us train manhood, but will the pupil attain to manhood if, without any hand being held out to help him, he is left to wander on those broad paths that lead to unemployment, pauperism, vagrancy, and crime? Manhood will best be attained by his being taught to work, to work with his hands honestly and zealously, to earn the right to exist by the strength of his body and the skill of his hands, to look the whole world honestly in the face because he is giving to the world as much as he takes from it. As long as for the majority of men useful work is the law of life, our schools and society cannot afford to ignore it and treat it as education-

[1] p. 54.

ally contemptible. With wider outlook, our educators should grasp the fact that through work a man realizes his manhood. If he is foolish, lazy, or vicious, he shows it in the wasteful, grudging or scamped workmanship he produces. If he has in him the Manhood of Industry, he shows it in the pride he has in his work, and the pleasure he gets from it. That manhood the boy and youth will only attain to through doing useful work. Instead, therefore, of contemning work, the school should do what it can to make of useful work an honourable, educative instrument through which one aspect of manhood may be attained.

This is all very true, it may be urged. By all means let us prepare our pupils to enter their future work with skill and intelligence, and with honest pride and zeal, but do not let us definitely prepare them for this or that trade. Let us devise for the school some ingenious, practical pursuits that will develop some general form of hand skill, some general form of intelligence, and some general spirit of workmanship, so that, when the pupil comes to leave school, he may enter any form of employment with fair prospect of becoming a good workman. Let us teach woodwork, but not practical carpentry and cabinet-making; metalwork, but not engineering and plumbing. But why? The operations of carpentry and cabinet-making, of engineering and plumbing require even more skill, intelligence, and care than many of the artificial tasks of school woodwork. To perform them is as productive of manual dexterity, of initiative and ingenuity, and of determination, as any of the exercises of Sloyd. Why, then, should the school contemn the real, practical problems and exalt the artificial?

There seems in educational thought to be a cult of the artificial. We see it in the manual exercises of Sloyd, in the practical measuring of wooden cubes, prisms and

cylinders, in the physical exercises of the Swedish and other systems. Yet we unhesitatingly affirm that the operations and work demanded by a useful craft, and the numerous and varied movements required in engaging in a game or contest, are more truly and highly educative than is any series of artificial exercises that the wit of man can devise.

In the first place, there is the great factor of the attitude of the pupils to the learning. We have seen that, onward from the age of eleven or twelve, the artisan boy has his mind increasingly turned on the question of work. What he is going to work at, and the things that bear on that work, fix his attention at once, and he will grudge no effort to learn them well. But whittling wood with a knife, or smoothing a cylinder with sandpaper, or measuring the side of a wooden cube, arouses in the boy little earnestness and sense of value after the first novelty is over. His heart is not in such work. And there can be no education of character where the will is not aroused to zealous effort.

With a real piece of carpentry, or engineering, or plumbing to do, the boy perceives the utility of it. Men do such things for a living. It is real, and not a school fiction. He is in the right attitude of learning at once, keen to solve the problems and to do the work skilfully, and ungrudging in his efforts to succeed. Such real useful work, we claim, calls out all that is best in the boy; and that is the true path to manhood.

Moreover, the problems involved in a piece of useful work are more varied and complex than those of artificial exercises. The latter are arranged so as to present difficulties in due gradation, and the pupil goes on from exercise to exercise with no chasms or gulfs to break the gradual progression. In the problems of real work there are many unexpected difficulties, and many disturbing side issues. Problems do not always present a clear

case. Pupils, when faced with them, find pitfalls for which they are unprepared. These unexpected and unprepared for issues disturb the methodical sense of the pedantic pedagogue, who loves "scientific" gradation. And yet, if initiative and ingenuity, determination and effort are to be trained, how can they be trained but by the unexpected and the unprepared for? And where can we find these so readily as in the problems that confront the practical joiner and engineer? Hence, therefore, on the grounds of training character and intelligence, we believe that the school is most truly educative in its practical aspect, when it makes its practical pursuits as like as possible to the practical problems the pupils will be called on to solve when they leave school.

The practical pursuits of the school, though utilitarian, should be taught and learned in an educative way. Each exercise should be made to yield its full measure of discipline of skill, of intelligence, and of will power. There has always been a tendency to teach the useful trades, each as a narrow, mechanical dexterity, limited in its scope to the automatic performance of a few actions. It is largely for this reason that the utilitarian has been despised as an educative instrument. There exists, however, no valid reason why a trade should be taught in such a mechanical way. As we have said, trades and crafts provide many excellent opportunities for cultivating a wide knowledge of things, for invoking intelligence to the consideration of ways and means, and training a manual skill of a fairly broad scope. It is only when so taught that the utilitarian becomes an educative instrument.

In the first place, the practical exercises should embrace a varied assortment of problems, and provide for the handling of many kinds of tools. They should be arranged so as to progress to more involved problems demanding a planning out of ways and means.

In the course, there should be different kinds of work with woods of different hardness and quality and involving the use of all the common tools, the making of joints, forging, casting and drilling in iron, tin and lead, bookbinding and cardboard box-making, simple printing, and work of a similar kind that has to be done inside a workshop with benches and tools. Outside, in a suitable waste space, the pupils can engage in simple bridge-making, constructing of roofs and small wooden buildings, surveying, levelling and laying out ground for building purposes. A supply of timber, poles, ropes, etc., once procured, could be used again and again in the way that similar material is used in instructing the recruits of a corps of engineers. To gardening we have already alluded in connexion with the teaching of nature knowledge. The practical pursuits in connexion with the field work of summer camps will be considered in dealing with that topic in a later chapter.

It is not supposed, of course, that all the above pursuits will be taught in one school, nor that every pupil will take every course that the school provides. The pursuits selected for each school should be determined by the needs of the district.

Further, each exercise should be based on a knowledge of the materials and forces used, and on an estimate of the quantities required to accomplish the result. Hence, in intimate correlation with the practical exercises, there should be instruction in:—

1. The properties of the various woods, metals, earths, etc., used, and the way these properties are made use of in industry.
2. The laws of force and the simpler ways of manipulating force, e.g. the lever, pulley, and inclined plane.
3. The practical measurement of space, mass, and

force in ways and with the measuring instruments used in industry.

In other words, the practical side of the curriculum should embrace those simpler aspects of physics, mechanics, and the art of measuring that are essential to the intelligent performance of industrial work.

It is not intended that each of the above should be taught as a separate course, that there should be a special treatment of materials, another of mechanics, and a third of practical measurements. One of the banes of school organization is the tendency of schoolmasters to keep each subject distinct from every other, to label it with a special name, give it a particular place on the time-table, and teach it in a watertight compartment. Nor should a teacher think because something in chemistry or physics is needed in order to understand some industrial process, that the pupils should take a complete course of chemistry or physics. The instruction in materials and the laws of force should be given incidentally to the practical exercises. It should arise out of them, and bear on them, in a thoroughly practical manner. The course in practical mathematics, perhaps, stands on a different footing. From the nature of the subject, it must be systematically progressive, and yet, although every attempt should be made to link it closely with the scheme of practical work, it is not always possible for the two courses to synchronize in the happiest of ways.

It will be noticed that we have placed Mathematics or Arithmetic in the practical part of the curriculum, and not in that of culture. We have done so because we hold that, as far as the ordinary individual is concerned, mathematics is required in life for purposes of practical calculation. We shall consider the teaching of this subject, then, entirely from the point of view of its usefulness in life. As far as the artisan primary school is concerned, the

mathematics should have a decidedly trade and craft application, an application quite different from the one that the primary school usually gives. Arithmetic and the arithmetic textbook developed in connexion with commerce, and so through the power of the textbook—one of the mightiest forces in modern schooling—it comes about that the primary school boy is taught to work problems on commissions, interest, discount, annuities, stocks and shares, and knows next to nothing of the measurement of space, mass, and force. Yet these latter are the things with which he will have to deal in industry. The problems on them are not more difficult than those on money. Area and volume, density and levers are not beyond the intelligence of the boy of thirteen and fourteen. At least, the writer has never experienced any difficulty in making these matters clear to boys of the industrial class. There is, then, nothing in the nature of industrial arithmetic that should cause it to be banished from the primary school. It is banished because the teacher can teach only what was taught to him, and what his school and college textbook prescribe for him. Happy is the school with teachers who can wrench themselves free from the textbook, and bring their minds without prejudice to solve the real problems of the school. Unfortunately the textbook and its tradition die hard.

We have heard some teachers remark quite seriously, that area and volume belong to mensuration, and density and levers to mechanics. It is only interest, stocks, shares, and such things that belong to arithmetic. What virtue there is in a name! Even if they did, would it matter? These things should be taught whatever be their name, if they are what the pupils should have. The objection shows how utterly under the dominion of the textbook many teachers are. Arithmetic, in itself, is neither concerned with money, nor with space and force. Its subject matter

is just abstract number. In its application, however, arithmetic is measurement, and is concerned with the measurement of whatever can be measured—time, space, mass, force, heat, light, electricity, as well as money and a host of other things. Hence, whatever be the applications of arithmetic, common to them all are numeration, the operations of addition, subtraction, multiplication and division, the fractional and decimal notations, the principles of ratio and proportion, and the algebraic and graphical forms of expression. These are required in all measurement and calculation. They must be understood by the artisan boy equally with his commercial brother. Accuracy and quickness in calculation, too, are arithmetic virtues needed in all measuring, and they are only acquired by much practice. Hence, whatever be the material application of arithmetic, the school should provide plenty of opportunity for practice in calculation. In respect both to the groundwork of arithmetic and to arithmetical practice, the artisan school differs in no respect from the commercial school.

Arithmetic, however, should be neither taught nor practised in the abstract. Its operations, methods, and principles should be learnt and memorized through concrete examples, either in the form of materials actually measured by the class, or examples considered in "problem" form. It is, therefore, in the form in which arithmetic is presented, that the artisan school should give the industrial bias. Instead of fractions, decimals, percentages, ratio, proportion and graphs being taught and practised in connexion with commercial problems, they should be taught and practised in connexion with the various ways of measuring different kinds of lengths, distances, heights, areas and volumes of different shapes, mass, density, and force; and the methods and units of measurement, moreover, should be those in use in

the yards, shops, factories, and warehouses of industry.

Arithmetic in industrial life goes hand in hand with practical measurement. Hence, for the purposes of the artisan school, arithmetic should be regarded as the art, as well as the science, of measuring. Pupils should be trained to measure with the implements that are used in industry, so as to gain both a knowledge of measuring instruments and an intelligent skill in the use of them.

The instruments of measurement are many and various, having been devised to meet the very varied conditions under which space, mass and force have to be measured, and the degree of accuracy required. Thus, length may be measured by a two-foot rule, a tape, a builder's lath, a chain, calipers, a screw gauge, or, indirectly, by means of a theodolite or clinometer. Weight may be measured directly by an arm balance, a steel yard, and a spring balance, or indirectly by means of the volume and specific gravity. The volume of a casting can be estimated by means of its weight and specific gravity, by methods of immersion, or by calculation from the cross section area.

Moreover, each mode of measuring and each instrument have their own peculiar weaknesses. Even to measure accurately the width or height of a room is more difficult than is ordinarily supposed. A two-foot rule or a yard measure that has to be progressively moved, brings a fresh error every time it is put down. Using a tape, too, will bring error if the line of measurement be not straight, or at right angles to the walls. In measuring smaller distances such as the bore of a pipe or the thickness of wire, other forms of error enter. Mistakes of reading due to an inaccurate or careless use of calipers or screw gauge, though small in themselves, are, relatively

to the length measured, great. Thus, a pupil given a piece of measuring to do is up against problems that require knowledge, initiative, and skill. He has to ask himself: what particular method of measuring is appropriate, what instrument is most suitable, what kind of errors should be guarded against, and what degree of accuracy can be attained? To work a practical problem analogous to many of those that are of daily occurrence in an engineering works, requires a quick insight into the peculiarities of the case, ingenuity to devise ways and means to meet the unexpected, and skilled care in using the measuring tool to obtain accuracy.

It is these attributes of a good workman that the practical measurements of the artisan school should try to secure. It is obvious they cannot be secured by the pupils measuring such regular figures as squares, oblongs, cubes, cylinders, and cones, that form the staple practical exercises of many courses in practical measurement. These cases present no variety, no difficulties, no peculiarities. They are straightforward cases of a rule. They have their value in teaching as a means of presenting methods and rules that are typical. They have none in developing the initiative and ingenuity that make up the power of adapting the typical to the peculiar. The practical exercises that will sharpen a boy's wits are those that depart from the normal type, and such as are found in abundance in the problems that face an intelligent workman in the builder's yard and the engineering workshop.

To obtain the material for these varied exercises, the teacher is recommended to obtain from neighbouring engineers, builders and joiners, a collection of odds and ends that usually lie on the scrap heap, such as odd bolts, ties, rivets, pieces of piping, old fall pipes, castings, brackets, bits of railway and tramway lines, pulley wheels,

cogged wheels, shafting, chains, old tanks, tubs, and barrels. These an employer will often present free to a school when he knows the purpose for which they are intended, or, at the worst, will charge only a few nominal shillings.

Besides the above examples, the school buildings themselves offer a vast scope for practical measurement. To the building of the school there has gone a large amount of measuring, planning, and estimating in connexion with the supply of bricks, mortar, cement, plaster, glass, panelling, floor boards, piping, flagging, etc. In the completed building much of this is capable of being measured by the pupils, the quantities calculated, and the prices estimated. It is important in such work that the teacher should make himself acquainted with the prices of materials, and the units in which they are usually measured and sold. Each part of a building, moreover, involves quite a considerable number of problems. For example, in connexion with the concreting of the playground, the pupils can measure the area of the yard, calculate the amount of broken bricks and stones to lay a foundation of a given thickness, the quantity of cement to give a surface of a certain depth, the number of loads of the materials required, the proportions of the ingredients in the cement, and the cost of each and of the labour and carting. The pupils in working out such problems will store up quite a fund of knowledge of the prices of materials and of labour, and of the different modes of measuring each.

Again, outside the school yard, there are further opportunities for practice. The heights of buildings, chimneys, and telegraph poles, the areas of recreation grounds and waste spaces, the amount of fencing or railing round them, the quantity of boarding in street hoardings, the amount of flagging and stone sets in a given length of road, all

offer problems that will tax the pupil's skill and ingenuity in measuring and his power of calculation.

All cases of practical measurement beyond the simplest need to be accompanied by a drawing to scale. Drawing to scale and rough sketching are arts that every good joiner, cabinetmaker, plumber, and mechanic should be proficient in. Hence, they should form a branch of the practical training. A pupil, then, who is given such a problem as the calculation of the amount of iron in a length of tramway line will proceed as follows: he will make a rough sketch of the cross section, take the necessary measurements—a process to tax his adaptive ingenuity,—draw the cross section exactly to scale, estimate the cross section area, then the volume of the given length, and, working through the specific gravity of iron, calculate the weight.

The course in practical mathematics, indications of which are given above, will not only develop a pupil's practical intelligence and skill, but will also give him a fuller and clearer grasp of the conceptions of arithmetic and geometry. For example, a boy who has worked through a number of textbook examples on the relation of the circumference of a circle to the radius with a blackboard drawing as the only illustration, usually finds π an unholy mystery to him. Even when he has measured cardboard circles and cylinders, π is largely an arithmetic convention of little use outside the classroom desk. But when he is given actual fall pipes, gas and water piping, shafting, pulley wheels, and the like to deal with, and the problems on them take a practical workshop form, he finds π is an instrument as necessary to a skilled workman as a ruler is to a draughtsman, and he values it as such.

Again, when he takes a metre rule and measures a length as x metres, y tenths of metres, and z hundredths of metres,

he realizes "decimals" as something for his eyes to see and his hands to use. 1 is a certain length that can be used, and ·1 and ·01 fixed portions of it to be used in certain eventualities.

Let us give one further striking illustration of the same point from geometry. Usually points, lines, angles, and triangles are to pupils but marks on the blackboard. The writer well remembers some time ago asking pupils who were talking glibly about an isosceles triangle to name some objects which illustrated that figure. It was only after prolonged and pointed suggestion that such examples as the gable-end of a house, the roof of a dog kennel, and the two ends of a straight kite were given. Yet probably every boy in the class had made a straight kite; all knew implicitly, but none explicitly, that the construction rods that form the diagonals of the kite were at right angles to each other, and that one of them bisected the other. An isosceles triangle to that class had only meant chalked lines on a blackboard. It had no relation to anything they had made often, and of which they knew most of the properties and the method of construction. When geometry becomes an aspect of simple practical surveying, then points, lines, angles and figures will cease to be conventions in chalk. They will become realities of position, direction, surface and solid, associated with and involved in the objects and processes of everyday life and work, and of use in practical measurement and practical construction.

The course in mathematics suggested above stands out in striking contrast to the course that is usual to-day in the schools of the working class. Setting the value, educational and practical, of the two side by side, who can doubt as to which an earnest teacher would choose? The latter awakens little interest, has little practical bearing on artisan life, and has none but a negative influence

on the boy's thoughts of a future career. The former interests him, because it uses his hands as well as his head, and it has a value to him because he sees its use and gains from it a power over things which he appreciates. The writer has indelibly stamped on his memory his impressions, on visiting a school, of a class of artisan boys engaged in practical workshop measurement. Each had his own practical exercise and was working it independently, and, moreover, without supervision, as the teacher was fully taken up with his visitor. The boys' earnestness and zeal, their care, their business-like methods, their evident pleasure in their work, persisting without cessation through a period of an hour and a half without any consciousness of disciplinary control and absolutely no need of it, gave a most pleasant shock. It was one of the writer's great lessons on education.

The great importance to the nation of such practical work lies in its power to awaken and direct the pupil's interest in skilled work and his ambition to engage in it. Too many boys under the present system of schooling are ignorantly and unambitiously content to leave school with no higher ideal than that of earning a few shillings as messengers and errand boys. It is here that the primary school of to-day must own itself a great failure. It arouses no interests in, no ambition for, and no ideal of skilled work. It leaves the boy—as far as practical manual work is concerned—a waster, unless the home influence counteracts its tendencies. There can be little doubt that it is to the inspiration and training gained from a thorough and prolonged course of handicrafts and practical mathematics and mechanics, that the nation and the school must look to stimulate the innate practical impulses of youth, and direct them towards an ideal of artisan manhood.

We have urged that the practical exercises, to be

educational, should develop more than manual dexterity, and give more than a knowledge of materials and instruments. They should develop the power to adapt skill and knowledge to varying circumstances. To do this, pupils should face each exercise in the attitude of inquiry, and bring initiative and ingenuity to bear in thinking out modifications of general modes of acting. Too often, as we have already remarked with respect to the teaching of other branches, the mechanical spirit of routine and of absorption alone are induced. Such will be the case when the pupils work practical exercises by following definite instructions given either verbally or in print. The pupils follow the instructions frequently without understanding the problem or the method of working, and, even when they grasp these, they hardly ever bring the various steps together as a whole and perceive them in relation to the problem. This method of instruction is educationally vicious. In the first place, the exercise is never faced by the pupils as a problem to inquire into. It is entered upon as a certain routine to be gone through uninquiringly. The will is never stimulated to cope with difficulties, nor the intelligence excited to deal with them. And without such stimulus, there is no discipline of the intellect and will.

Class teaching, too, is open to a somewhat similar objection, though its evil effects are not so great. In good class teaching in which the instruction rises beyond lecture, the teacher and the class work out the inquiry by co-operative effort. The teacher, by questioning, directs the thoughts of the pupils to an insight into the peculiar features of the case, and by hints, largely of the nature of suggesting comparisons and contrasts with more familiar instances, induces them to think out a method of dealing with them. Such teaching, it must be owned, is most stimulating to class and to teacher.

There is nothing more exhilarating to a teacher than to feel his class responding in interested effort and thought to his slightest hint and to his leading questions. Because of this tonic effect the teacher is apt to overrate the value of class teaching. The structure, so beautifully and swiftly built, is often on a foundation of shifting sand. The hard-hearted critic cannot help but ask, and with much justice, how much of pupils' insight and suggestion there would be if the teacher were not there, and to what extent each boy could independently have even begun the inquiry.

Class teaching there must be. A boy must walk before he runs ; a child must first totter stumblingly, helped and encouraged by his mother, before he walks; so, too, with the first stumbling steps of the boy's intelligence. Class teaching, by the inspiration of the teacher's personality, encourages effort, stimulates the imagination to bolder steps and longer flights, and keeps the pupils progressing continuously in the right direction when, if left to themselves, they would fail or wander hopelessly from the path. Obviously, though, it is only a stepping-stone to the method by which each pupil attacks his problem for himself and by himself, and stands almost wholly on his own feet. All good teaching shows a steady advance to the climax of independent individual work.

All teachers who have had experience in directing the individual work of pupils in a practical pursuit are only too much aware of the great difficulties involved in it. Let us suppose each member of a class of twenty-five boys is given a practical exercise different from that given to the others, and required to work it out independently. A few, perhaps, accomplish the task successfully. A few others arrive at a result in some haphazard and circuitous manner. Many, however, break down

utterly; some unable to begin the inquiry, others to deal with the crucial difficulties. The instructor finds himself utterly unable to grapple with a large number of failures, and in despair resorts either to class teaching in which each step is worked out inductively by the combined efforts of the class and teacher before it is done practically, or to the method of giving each pupil printed or written instructions. Each is a confession of failure. Some way must be found of giving guidance to independent effort without a personal appeal to the teacher. The following plan is suggested as a workable mode of procedure.

Let each pupil, when he has progressed sufficiently by class teaching, have his separate problem to work out independently, but, instead of a printed or written paper of instructions, let the teacher draw up a series of queries so as to suggest to the pupil a line of thought at each crucial stage of the inquiry. In other words, the teacher analyses each larger problem into a series of smaller ones, arranged so as to suggest the main line of thought. Let it be noted, however, that the method of working is not suggested, but only a line of thought leading to it.

As an example, suppose the main problem be to find the amount of iron in a casting of twenty feet of fall pipe similar to a specimen provided. The problem might be analysed into smaller ones as follows:—

1. What is the law for finding the volume of cylindrical solids?

2. How will you find the cross-section area of—

(*a*) the whole pipe,

(*b*) the bore,

(*c*) the solid portion?

3. What measurements will you take from which to calculate the above areas? What instruments will you use and what degree of accuracy is possible with the

instrument chosen? Consider whether you will take one measurement or find an average of several.

4. How will you find the volume of 20 feet, knowing the cross-section area?

5. How find the weight knowing the volume?

6. If D and d respectively be the external and internal diameters of the fall pipe and δ the specific gravity of cast iron, write down an expression for the weight of material required to cast l feet.

Sufficient direction is here given for any boy of average intelligence to work out the problem without supervision, provided he has received efficient instruction and practice in the typical case of finding the weight and volume of a regular cylinder. The queries guide his thought to the right issues, but do not suggest solutions. The better pupils should, of course, be able to work such a problem unaided. Should, however, any pupil be unequal to the task, the list of queries is at hand. In this way the teacher avoids the insidious evil of mechanical routine and the fallacious initiative of class teaching. Each pupil has, to some extent, to stand on his own feet, and make some effort to stride from signpost to signpost. As the pupils gain power with varied experience and practice they will be able to make the whole journey without signposts and warnings, as scouts in a strange country travel by reading the marks of the landscape.

CHAPTER VII.

THE PHYSICAL PURSUITS.

PHYSICAL pursuits make up the third great group of school occupations. These, like the practical subjects, have no narrow end in view. They aim at training an aspect of manhood, important in the battle of life and to the joy of living. Each of the three great branches of the curriculum seeks to develop in the pupil the virtues of three great aspects of manhood. The culture studies work towards a manhood of intellectual and social interests and power; the practical aim at the virtues of industrial manliness; the physical seek to strengthen those qualities of body and mind that are needed in effective struggle with physical force. The ideal manhood embraces all these aspects, and he who most harmoniously and in justest measure, as Plato puts it, combines them in his own being, shall be a master of harmony in a far higher sense than the musician of strings.

Physical manhood has in it attributes akin to those of the manhood of industry. Both exhibit their powers in masterful, bodily action. But, whereas the one aims at turning the forces of nature by knowledge, intelligence, and skill to useful ends, the other delights in contending with them and mastering them for the very joy of conquest. To use Emerson's phrase, physical manhood depends on "a *plus* condition of mind and body, on power of work, on courage". It is an excess of virility, more elemental, more akin to rude animal nature than

the practical, barbaric even in the exercise of its power for the delight of possessing and using it. It is dangerous and destructive when not held in leash and refined and disciplined by the milder influences of culture and utility.

Destructive and dangerous to social order, utterly individualistic as it is, yet it cannot be spared, for it is the human force that conquers the world. It drove the Northmen as conquerors round the coasts of Europe. It discovered the sea routes to the great West and East. It peopled the waste places of the world with hardy colonists. We see it in our mountaineers, our explorers, our frontiersmen, and, in embryo, in our boy scouts. Wherever there is danger from man or beast, wherever hardship to endure from heat or cold, drought or famine, wherever adventure, there you will find these splendid types of men, muscular, hardy, enduring, utterly fearless, who, like Nelson at Copenhagen, "would not be elsewhere for thousands". These men are made "for war, for mining, hunting, and clearing, for hairbreadth escapes, huge risks, and the joy of eventful living".[1]

This type of manhood is one we pride ourselves is peculiarly English, and even foreigners recognize it as a distinctively English trait. "The young English are fine animals, full of blood, and, when they have no wars to breathe their riotous valours in, they seek for travels as dangerous as war, diving into maelstroms; swimming Hellesponts; wading up the snowy Himmaleh; hunting lion, rhinoceros, elephant in South Africa; gipsying with Borrow in Spain and Algiers; riding alligators in South America with Waterton; utilizing bedouin, sheikh and pasha with Layard; yachting among icebergs of Lancaster Sound; peeping into craters on the Equator; or running on the creeses of Malays in Borneo."[2]

[1] Emerson. [2] *Ibid.*

An analysis of physical manhood shows us qualities of body, intelligence, and character. "The first wealth is health. Sickness is poor-spirited, and cannot serve anyone; it must husband its resources to live. But health or fulness answers its own ends, and has to spare, runs over and inundates the neighbourhoods and creeks of other men's necessities."[1] The ideal of physical health and strength is a body of such form and of such action as inspired the heroic sculpture of Ancient Greece. It is an ideal paralleled by the typical English sportsman of to-day whose recreations are hunting, riding, shooting, and rowing. Its marks are robust health, expansive chest, broad shoulders, upright carriage, elasticity of step, freedom, ease, vigour, quickness and sureness of movement, and strength, but controlled and ready for any emergency.

Closely allied to the physical readiness of the body is the mental readiness that is known as "presence of mind". It is a combination of alertness, coolness, and resourcefulness. It is the power to rise to the sudden emergency, to deal quickly and effectively with the startlingly unexpected. It seizes every opportunity that chance offers. In its more active and imaginative form, it is enterprise beside which, as Háfiz says, "on the neck of the young man there is no gem so gracious". Enterprise makes opportunities. It lives always between the present and the future, with its hand on the one and its eye on the other, planning, constructing, evolving with ceaseless and tireless energy.

Behind these powers of strength and resource, infusing them with an almost fierce, joyous energy, is the fighting impulse that delights in contending with danger, difficulty, and hardship. It launches out enterprise with confident courage, it faces danger with firm resolution, it puts its

[1] Emerson.

back to the wall with dogged determination. It is, as we have seen, the natural impulse that makes youth enjoy football and wrestling, snowballing and fighting, roughing it at camp, venturing life and limb on the ice and rocks of the Alps. It mans our life-boats, fire-brigades, and territorial forces. In industrial and commercial enterprise it takes risks with cheerful optimism, and demands success by its confident courage and tireless energy. In all walks of life and in every aspect of life, it is the factor that wins success, that never knows it is beaten, and wrings victory out of the jaws of failure.

Strength, endurance, resource, and hardy courage are the qualities that have been most prized by the great conquering nations of the earth; and the education of the youth of these nations has, consciously or unconsciously, by purposive discipline or recreative play, been largely determined by this ideal. Such nations have been too wise, or shall we say too practical, to rely only on a verbal instruction in training their young. The young have imbibed an admiration for the strong and hardy virtues from song and story, by precept and example; but, also, the elders and parents have disciplined their boys from an early age in the school of action. The business of manhood in these nations was warfare, so mimic warfare was made the school of manhood.

Xenophon, in his account of the Ancient Persians, a picture largely imaginary though true in spirit, declares the Persians esteemed hunting, "as the truest of all trainings for war. For, in fact, it inures them to early rising and to the endurance of heat and cold, while it gives them exercise in marches and in running, too; they must both use the bow and shoot the dart against a wild beast wherever it falls their way. Their

courage, too, must be often sharpened, whenever any of the strong wild beasts confront them." [1]

In Ancient Greece, the same importance was attached to the sterner qualities of body and mind, qualities that were exhibited in Sparta in all their brutal hardness and ferocity, but were softened and refined at Athens by the effects of intellectual culture. The system of training organized to develop the Greek type of hardy manhood was the most thorough and wonderful that the world has ever seen.

The Spartan training was directed to the development of hardness of character and hardness of body.

"Only those babies that gave promise of strength were allowed to live, the others were cast out on the mountains to die of cold and neglect. At seven years of age every boy was sent to the public training school, where he was lodged hardly, clad in only one thin garment, and given insufficient food that he might learn to forage successfully in war by stealing without detection what he needed in peace. He was constantly trained in gymnastic exercises, and, as he grew older, in those of war. His only intellectual education was music, and that of a stirring, warlike nature. At the age of twenty he went to a military barracks, and became essentially a soldier, and throughout life his first duty was to the State.

"Not content with the fortitude and hardihood which such a training would naturally produce, the Spartans made occasions for practice in bearing pain. The boys were beaten yearly before the altar of Artemis till their blood soaked the ground." [2]

In reflecting on such an education, we can agree with

[1] "Cyropadeia," I, i. 6-12. Translation by W. H. Balgarnice.

[2] "Principles of Physical Education," by W. P. Welpton. Chapter on the "History of Physical Education," by Professor Welton.

Aristotle when, in criticizing the Spartan training, he said: "He praised them in that they trained their men for war, he blamed them in that they trained them for nothing else".

Not so brutal and ferocious in its effects but hardly less strenuous, was the course of physical training of the Athenian youth.

Lucian gives a vivid picture of the course of training: "We develop their bodies somewhat as follows: we strip them of their clothing; and, as I remarked before, they are no longer delicate, and yet are not sufficiently compact for their life's work. We consider that the first step is to accustom them to the air; to render their bodies inured to each season, that neither with the heat they may be troubled, nor may become exhausted from the frost. Next, we anoint their bodies with oil to soften them and to make them more sinewy. . . . After this, we devise various kinds of gymnastic exercises and place directors over each. We teach one to box, and another the pancratian contest.[1] We do this that they may become accustomed to endure hardships manfully, and at the same time to avoid blows, and that not from fear of wounds they be turned back from their purpose.

"This discipline works out in them two very important qualities that are of great value to us. They are prepared to be courageous in danger and to take little account of their bodies, but above all, their bodies become stout and capable of endurance. Further, those who catch falls in wrestling learn to fall with safety, easily to rise again, to push, to embrace, to twist, to be able to endure strangling, and to send their antagonists into the air;

[1] The pancratian contest was a mixture of boxing and wrestling. It was a dangerous contest, and the exercise was very severe. Carefully regulated by the paidotribes or instructors, the exercise seldom resulted in serious injury.

nor do those who exercise regard this part as useless, but without hesitation they grasp the first strong man they meet, even the very strongest. In this way their bodies are hardened to suffering, and by constant toil become more robust. . . .

"Our young men are tinged a dusky red by the sun, are masculine, have much spirit, show great zeal and manly courage, and, furthermore, enjoy excellent health. . . . You may depend upon it, only after long labour would he who has been subject to this training sweat, and very rarely would he show signs of weakness. . . . So likewise, if disease and fatigue should unexpectedly attack such a body as our young men possess, they could neither readily dishonour it nor easily conquer it. . . . In fact, previous toil and pain have produced no loss of strength, but an increase, and that strength by being rekindled has become greater still.

"We train our young men to run also; we accustom them to endurance in a long race, and encourage them to make a short distance in the quickest time. . . . In addition to this, we exercise them in leaping ditches, if thought necessary, or any other impediments, even with their hands filled with leaden weights. They contest, further, in throwing the javelin to a long distance. Now, I believe you noticed something else in the gymnasium. The object was of brass, and was rounded somewhat like a small shield, but it was without either handle or band. You examined it as it lay in the court. You thought it heavy, and from its smoothness hard to grasp. That, too, they raise in the air, and throw it to as great a distance as possible. Him who, by throwing the plate (i.e. the discus or quoit) the farthest, surpasses the others we honour. This exercise strengthens their shoulders, and puts sinews in their toes.

"Now, my friend, if you will listen, I shall ex-

plain why the mud and the dust, which at first seemed to you very ridiculous, were thrown down. In the first place, that the fall of the young men may not be hard, but that upon a soft surface they may be thrown with safety. Then it is necessary that the slipperiness of men sweating in the mud become greater—a slipperiness which you likened to that of eels. We regard this also neither useless nor ridiculous. Whenever the contestants are compelled in this condition to seize one another with the vigour of antagonists, and to hold those who are slipping from them, this effort lends not a little to the development of their strength and sinew. To grasp a person that is sweating in mud and oil, and to throw him while he is slipping hastily from your hands, is not a small thing to do. And, as I said before, all these practices are especially useful in time of war against our enemies; for instance, if it be necessary at any time to catch a wounded friend, and at once to bear him away, or to come upon an enemy unawares, to grasp him while surprised, and to secure him. That, while anticipating harder trials, our young men may bear smaller tasks with far greater contentment, we train them somewhat to excess. . . .

"These are some of the reasons why we subject our young men to exercise. We expect them to become a noble guard to our body politic, and that through their protection we shall live in the enjoyment of liberty. Should our enemies invade our territory, these will conquer them. In fact, to such an extent are they now a fear to our neighbours that most of the States are in awe of us and pay tribute. In time of peace we can manage much better those who are elated by nothing disgraceful. Nor are our young men thus turned from idleness to wantonness, but in such pursuits as these they wear away their leisure. Finally, whenever we can

say that our youth, both in peace and in war, are fitted to do the noblest deeds, that they appear zealous for our highest honour, then we possess that which I spoke of as the common weal, as the happy culmination of our civil prosperity."[1]

We have given at such length the details of the training of the youth of Ancient Greece, and the purpose of them for two reasons. First, it stands out in such striking contrast to the puerile, nay effeminate, efforts of the primary school of to-day, to train hardy, manly boys. When one notices the number of youths who have left school slouching aimlessly along the streets, loafing at street corners, gambling in back alleys, who are narrow chested, weedy, unable to bear fatigue, afraid of exertion, and frightened of physical pain, one cannot but conclude that some such discipline as hardened the youth of Ancient Greece would have made better men of them in character as well as in body. Second, the details of the training—with such modifications as our climate, our different tastes, and our more strenuous industrial conditions suggest—are such as we would desire to see practised in our schools. Running, leaping, boxing, wrestling, tug-of-war, football, cricket, hockey, fives, hand-ball, throwing the quoit, camping, scouting, if introduced and practised seriously in our schools, would be an admirable modern substitute for the exercises of Ancient Greece.

It is unnecessary to illustrate further from history the kind of training that has proved successful in the past in developing a hardy, manly type of character. The principle of them all is training through an active outdoor life by mimic warfare, contests, struggling games, hunting, sports, and the like. We cannot, however, refrain from quoting a striking passage in illustration of

[1] Anacharsis.

our point from that epic of the American pioneer, "The Blazed Trail," by Mr. E. S. White. In it he gives a vivid picture of physical manhood, though unrefined by any culture, that is to be met with on the borders of civilization in the forests around the great lakes. Describing the American pioneer, Mr. White says: He is "resourceful, self-reliant, bold; adapting himself with fluidity to diverse circumstances and conditions; meeting with equal cheerfulness of confidence and completeness of capability both unknown dangers and the perils by which he has been educated; seizing the useful in the lives of the beasts and men nearest him, and assimilating it with marvellous rapidity; he presents to the world a picture of complete adequacy which it would be difficult to match in any other walk of life. He is a strong man, with a strong man's virtues, and a strong man's vices. In him the passions are elemental, the dramas epic, for he lives in the age when men are close to nature, and draw from her their forces. He satisfies his needs direct from the earth. Stripped of all the towns can give him, he merely resorts to a facile substitution. It becomes an affair of raw hide for leather, buckskin for cloth, venison for canned tomatoes. We feel that his steps are planted on solid earth, for civilizations may crumble without disturbing his magnificent self-poise. . . . He has something about him which other men do not possess—a frank clearness of the eye, a swing of the shoulder, a carriage of the hips, a tilt of the hat, an air of muscular well-being—which marks him as belonging to the advance guard, whether he wears buckskin, mackinaw, sombrero, or broadcloth."

And what is the training that has produced this splendid type of physical manhood? "He had faced almost certain death a dozen times a day. He had ridden logs down the rapids where a loss of balance

meant in one instant a ducking, and in the next a blow on the back from some following battering-ram; he had tugged and strained and jerked with his peavey under a sheer wall of tangled timber twenty feet high—behind which pressed the full power of the freshet—only to jump with the agility of a cat from one bit of unstable timber to another when the first sharp crack warned him that he had done his work, and that the whole mass was about to break down on him like a wave on the shore; he had worked fourteen hours a day in ice-water, and had slept damp; he had pried at the key log in the rollways on the bank until the whole pile had begun to rattle down into the river like a cascade, and had jumped, or ridden, or even dived out of danger at the last second. In a hundred passes he had juggled with death as a child plays with a rubber balloon. . . . No wonder that he fears no man, since nature's most terrible forces of the flood have hurled a thousand weapons at him in vain. His muscles have been hardened, his eye is quiet and sure, his courage is undaunted, and his movements are as quick and accurate as a panther's. Probably nowhere in the world is a more dangerous man of his hands than the riverman."

The school of the pioneer is a rough and hard one, and a rough diamond is he, but he is a diamond of the first water. He lacks the refining, softening graces that culture would give him, but he has won in hard strife with the giant forces of nature the first of all qualities of a great nation—physical manhood, which if a nation forgets and turns away from, the beginning of her fall is near at hand.

Many of the higher culture and of sentimental humanism will scoff: what have England and twentieth century civilization to do with such elemental, brute passions and forces? England, it is true, has no need of lumbermen,

but she has need of such a manhood to fight her battles on sea and land, of resolute pioneers to spread her empire in the waste places of the earth, and of hardy, enterprising colonists to people them, and, at home, in the ranks of industry, she needs fighters. Industry, no less than war and empire, must have to wield her weapons of peace, hardy frames, resourceful wits, and resolute courage. Nor can England spare from any of her citizens the sturdy independence, confident self-reliance, and stubborn grit that have made her what she is, and that are not fostered in the school of higher culture.

England, if she is to hold her place as the great civilizing and colonizing nation of the modern world, must train her youth to take their place in the nation and empire, as citizens, workers, and colonists, strong, skilful, resourceful, independent, and resolute. Her youth must *win* their manhood—in the only way it can be acquired—by hard experience in mimic warfare, contests, struggling games, and a rough, hard life in the open air. Much as we admire culture, much as we would give our youth the sweetening refinements of manners, intellectual interests and social activity, we cannot help but recognize in the broad educational perspective that the first need of a great expanding, industrial nation is physical manhood, and the first educational claim on its schools is the means to attain to it.

The essential characteristics of the physical education of schools, then, should be:—

1. Vigorous exercise in the open air to secure health and strength.

2. Variety of physical action to develop agility.

3. Rough handling, struggling, blows, bruises, and hardship to cultivate endurance.

4. Strife:—

(*a*) Strife of physical strength to harden the frame.

(*b*) Strife of wits to call out alertness, coolness and resource.

(*c*) Strife of wills to stimulate courage and resolution.

That physical exercises and drills fail to satisfy this criterion is obvious, but must be pressed home in view of the almost universal practice of primary schools to-day. It is folly to imagine that a great nation can entrust the development of its manhood to so feeble and effeminate an educational contrivance. Moving the body and limbs at the word of command can serve as a daily, mild, physical tonic to counteract in some measure the daily overdose of sedentary poison, but it needs something harder, more vigorous, more spontaneous, with more grip on the physical impulses to secure the end we have outlined above.

Considered only in regard to the training of health and physical movement, games and contests are vastly superior to exercises. Compare the movements of a class of boys who, during a gymnasium lesson, spend half the period at formal exercises, and the other half at some such gymnasium game as hand-ball. During the exercises the movements are all regularly prescribed, repeated a number of times with monotonous routine, then changed to another series similarly prescribed, and repeated with a similar monotony. There is no freedom, no spontaneity, no variety, no unexpected, no emergency, no play of mind.

During the game, on the other hand, each boy is continually stooping and raising himself, bending forward and backward, twisting to this side and that, wriggling, struggling, pushing, running, stopping, turning, throwing above and below, to right and left, forward and backward. There is no movement that is prescribed in the routine of exercises that, in such a game, is not made many times over with a spontaneity, freedom, and elasticity that no routine exercise can compass. Every muscle in the body

is brought into continued and varied action with a vigour and keenness that stimulate the bodily functions in a more intense way than does many times the amount of mechanical exercise that awakens no enthusiasm and effort. In their effect on health, and in developing power of muscular action, games and contests stand far above physical drills and exercises.

Moreover, in all that goes to the training of agility and skill of general bodily activity, games and contests are superior to exercises. The sequence of movements in games is not prescribed and organized on any methodically progressive plan. The circumstances of the game change unexpectedly from moment to moment, and the movements of the contestants must, in like manner, change continuously so as to meet as effectively as possible the changing circumstances. Continuous adaptation is the essential feature in games and contests, as it is in the actions of real life. Adaptation, however, means the correlative action of the organs of sense with those of movement. Sight, hearing, touch, and the hardly conscious muscular sensations by which one feels rather than perceives the force, rapidity, and direction of movement have to guide the muscles to right action. On the one side there must be alertness of perceptual attention, quickness in interpreting signs, and readiness to suggest action. Perceptual concentration in playing games and in engaging in contests is a characteristic without which there can be no success. A fencer, no matter how expert, cannot relax his attention for a single moment from the eyes and movements of his antagonist. Each glance, each gesture, each change of attitude, every fluctuation, too, of the pressure of the foil have instantly to be interpreted, and the mind held ready to meet the expected attack. On the side of movement, there must be muscular readiness to respond quickly and accurately. What the intelligence has

foreseen through the acuteness of the senses, the muscles must be prepared to deal with at the right instant. Senses and muscles must act in perfect unison as correlative parts of an organic machine. Such harmony of action, automatic in its perfection, is the result only of constant practice. It is when the hand has responded to the eye many times, in many varied circumstances, and by as many varied kinds of movements, that the sudden emergency will be met by an action that is instant, sure, and effective—and in saying the "eye" and "hand," we speak symbolically of the whole senses and the whole muscular frame.

Physical exercises and drills cannot develop such perfection of adaptive correlation of senses and muscles as is outlined above. In their performance perceptual attention is at a minimum. Their methodically graded progression and their monotonous repetition are, in this respect, not an advantage, but a positive hindrance. As well might we hope to train a fencer by never allowing him to meet an opponent, or a pianist by practising scales alone, as produce quickness, sureness, and effectiveness of general physical adaptation by exercises mechanically performed.

Not only is there in the movements in playing games correlation of the organs of sense and movement; there is also a co-ordination—an acting together—of muscle and muscle, or rather of groups of muscles with each other. For example, in a boy's picking up a ball bouncing from the ground, turning, and passing it straight and surely to the arms of a comrade, there is hardly a muscle of his body that has not contracted and relaxed many times just to the right amount, with the right force, and at the right moment. On the perfection of such co-ordination depend the ease, smoothness, quickness, and accuracy of the whole action. When muscle does not act with

muscle in perfect accord, there follow clumsiness, awkwardness, waste of power, and consequent failure in result.

To some extent exercises train this co-ordinating power, for many of their movements are complex, requiring limbs and body to act in harmony. For example, if the arm is to make a well-delivered blow or lunge, as in lunging exercises, it must have behind it the weight of the body swinging from the fulcrum of the hips, the body must be firmly yet freely balanced on the legs, and the whole frame must be knit together by muscular contraction into a firmly welded, yet freely moving, jointed machine. And this obviously requires the co-ordinated action of the muscles of the whole frame.

In training efficiency of muscular co-ordination, games and contests are again superior to exercises, and again the superiority lies in the continuously changing adaptative movements that games exhibit. For example, a fencer lunging against an opponent may find he has to spring back to avoid an unexpected counter. A batsman prepared to drive the ball may, owing to an unexpected break, shoot or spin of the ball, be compelled to defend his wicket. Thus in games and contests the muscular system has to be ready, not only to carry out the action intended, but to be under such control as to be able to modify or arrest the action and to engage immediately in a totally different one. In other words, in games and contests the muscular system has to be ready for emergency; in exercises it carries through a series of prescribed movements in a routine manner to a familiar end.

Thus, the methodical system and the graded progression of exercises that their advocates so highly praise are, in the light of careful analysis, seen to be positive disadvantages. The advocates of exercises may claim a scientific basis for them, but that basis is physiological and anatomical, and not educational. Education begins

with an analysis of the result to be attained, and uses physiology and anatomy in devising the means to accomplish it. When physiology and anatomy determine the beginning, the means, and the end, they are no longer servants but masters, and the result is not educational efficiency but educational disaster.

The games and contests that are especially advantageous in training a varied correlation and co-ordination for adaptative action are: batting and bowling in cricket, throwing in to the wicket, single-stick, boxing, hockey, fives or rackets, hand-ball, and association football. Wrestling, football (Rugby), hockey, boxing, and single-stick are valuable exercises for the development of hardihood, courage, and resolution. Wrestling and Rugby football are good also for developing general physical strength, as are most struggling games.

Since few primary schools are supplied with playing fields, it becomes a matter of extreme urgency to organize a number of games and contests appropriate for the playground and school gymnasium. Every primary school should have attached to it a large hall or covered space that can be used in all weathers for games and contests. The apparatus necessary is not great. There are required several mats, ropes, a vaulting horse and jumping stand, besides the necessary instruments used in the contests and games. The following games and contests are suggested as a groundwork :—

Boxing, punch ball, wrestling, single-stick, tug-of-war.

Running, jumping, leaping, vaulting, and rope climbing contests.

Hand-ball, throwing a football round and across a ring of boys, and gymnasium ball games.

Gymnasium quoits and throwing coils of rope (lassoing).

The last two exercises suggested above are seldom practised in school gymnasiums, yet they are excellent

for training the eye and arm to act in unison. Moreover, they are good for promoting a free and elastic carriage of the body.

In all the above games and contests, the attitude and carriage of the body as a whole are important factors in success. The momentum of the body should always be used to enforce the action that is being carried out, and the body should be freely held on the hips and supported firmly on the feet, or the action will be feeble. Moreover, in the swing of the body backwards and forwards, to right and to left, the free action of the joints of the toes, ankles, knees, and hips is most important. In all such matters as correct attitude, carriage, action, and breathing, the pupils should receive instruction and practice. Indeed, the instructor would do well to devise a series of exercises and simple games, embracing the more important of these elements of good action, and practise the pupils in them until they have reached some measure of perfection in performing them. Exercises such as lunging and guarding in fencing, running with correct attitude, and the like, have their value as propædeutics to the games and contests in which they will be used. It must be remembered, however, that exercises such as these do not, in themselves, make up a complete physical training. They are to games and contests what scale practice is to pianoforte playing. They practise those elements of skilled action which should afterwards be used against an opponent, when quick and sure adaptation to changing circumstances is a vital factor in success.

CHAPTER VIII.

HEALTH.

ROBUST health is of the first importance in life. It is a great asset in the vigour of physical action, in the power of mental work, and in the joy of living. In health, the organs that nourish the body and minister to its life and growth respond to the demands on them with easy vigour, and the muscular and nervous systems are correspondingly energized. There is in health, to use Emerson's phrase, "a *plus* condition of mind and body, in power of work, in courage . . . an excess of virility". In health, movement is performed more readily, swiftly, and surely than in ill-health and weakness; it is more forceful and controlled; the muscles have greater power of work, greater latent energy to rise to sudden and violent calls on them, and larger resources to withstand fatigue, and to recuperate from the exhausting effects of prolonged or severe effort; mental work, too, is entered on with greater zest, there is greater power of concentration and persistence, more elasticity and verve; more than all, the whole tone of consciousness is coloured with brighter and warmer tints, courage is more confident, and the spirits more cheerful and optimistic. There is a good deal in the old theory that courage depends on the circulation of the blood. Undoubtedly, it is true that, when the circulation is feeble and sluggish, the outlook on life is dark, timid, melancholic, and pessimistic, and, when the circulation is vigorous, the note of life rings with more cheerful, bright, and courageous tones.

Health being so important a factor in work either of body or of mind, and having so decided an effect on temperament, it is essential that those engaged in educational effort either as administrators or as teachers should grasp with bold clearness the main conditions that determine healthy life and growth, and the effect of these on the power and skill of physical action and on the vigour and tone of mental life.

As the work of a household is shared between man and wife, the husband attending to external relations, and the wife concerning herself with internal affairs, so the work of the human body is shared between two parts of it. One, the executive system, has its activity directed towards the external environment in perception and in movement; the other, the organic system, is concerned with the internal economy of life, health, and growth.

The executive system consists, on the one side, of the sense organs of sight, hearing, taste, smell, touch, and the sense of movement, and on the other of the muscles supported by the bony framework, and attached to it by sinews. The sense organs are the "eyes" of the mind by which it is kept informed by sense impressions of the nature and movements of external things. The muscles, bones, and sinews are its "hands" to perform the physical work it wills. So that the two parts of the executive system can work together, they are brought into connexion with each other by means of the central nervous system. The central nervous system consists of a number of nerve centres in the brain and spinal cord, from which centres are controlled the various kinds of activities performed by the body. Nerve fibres connect the nerve centres to the different sense organs and muscles concerned in the activity, and, also, the nerve centres with each other, for, as we have seen, there is often need for many activities to be combined into united action.

Thus, though each elementary activity has its own centres of control, yet the whole of the sense organs and muscles can be brought into correlated and co-ordinated action by means of the connecting nerve fibres that bind all the centres in brain and cord into an organic working unity.

In the "highest" brain is a collection of nerve centres, the activity of which has a mental as well as a physical aspect. All the sense organs by means of nerve fibres send messages to these centres, so that we have mental impressions of sight, hearing, and the like, for intelligence to interpret by the aid of past experience. Nerve tracks, too, go from these higher centres of consciousness to all the muscles, so that physical action can be under the control of the will. All messages or nerve currents from senses to muscles transmitted through the centres of consciousness are modified by the action of will acting under the influence of intelligence and feeling. Some are intensified; some weakened, or altogether inhibited; others are modified in their character.

The nervous system, then, is the organizing machinery for all the activities, mental and physical, of the human being. On its power depend the nature, vigour, and amount of those activities. Hence the degree of its vitality is of fundamental importance in efficiency. If the vitality of the nervous system is lowered by fatigue or exhaustion, by want of nourishment, or by faulty and feeble action of some part of the organic system, the effects are seen at once in both physical action and mental life. Movement becomes sluggish, heavy, stiff, and awkward, as in the case of the golfer who, after a sleepless night or a bilious attack, is "off his drive," or, as in the case of the batsman who, under similar circumstances, cannot "get his eye in". What is really at fault is the nervous machinery by which the organs of sense and movement are brought into correlative action. This

nervous machinery is "below par," and is working more sluggishly, less smoothly and certainly than is its wont. In consequence, the messages from senses to muscles are a little late in being transmitted, a little uncertain and hesitating, and the golfer tops or slices his ball, and the batsman brings his bat down just a moment too late. When the nerve centres are in healthy working condition, and the nervous machinery is running smoothly, the ball is driven clean and true, and with no uncertain hand.

In a similar way, the tone of mental life rises or falls according as the vitality of the nervous system is heightened or lowered. When the nerve cells are depleted of energy, or paralysed by the poisons of illness or fatigue, the intelligence is dulled, the feelings are depressed, and the will irresolute. But when nervous energy is stimulated by copious supplies of fresh air, and by sharp exercise that drives the blood coursing through the system, then the intelligence is alert, the imagination flows freely, the feelings are brightly optimistic, and courage is bolder, firmer, and more confident.

Efficiency, then, is to a considerable extent influenced by health, and health is the result of a good action of the organic system of the body. The organic system of the body consists of the digestive and respiratory organs, the heart and blood-vessels and the blood contained by them, and the excretory organs such as the glands of the skin and the kidneys. These are the bodily organs, the function of which is to nourish and to serve the needs of the tissues of the body. What those needs are will be plain when the life activity of the tissues has been made clear.

The tissues are storehouses of energy, muscular tissue of the energy of muscular contraction, and nervous tissue of the energy of nervous excitation and conduction. In muscular and nervous activity, muscular and nervous

energy is used up with a corresponding destruction of muscular and nervous tissue. Even when no actual physical or mental work is being performed, energy is required to maintain bodily heat and for all the organic movements such as breathing, heart beat, digestion, etc. Thus, one side of tissue life consists in a continual breaking down of tissue substance, and a releasing of tissue energy in the form of heat, movement, nervous excitation, etc. The other side of tissue life is a ceaseless building up of tissue, and a corresponding storing up of energy as long as nourishment can be absorbed from the blood. These two processes—building up and breaking down of tissue, storing up and expending energy—make up the life activity of all tissue. When the building up exceeds the breaking down, the body increases in weight and the tissues increase in their vitality. When the breaking down exceeds the building up, as in too hard work or in illness, the body decreases in weight, and the vitality of the tissues is lowered.

The immediate source of tissue substance and energy is the blood-stream which is rightly named "the vital fluid". On the nutritious plasma of the blood and on its oxygen-carrying red corpuscles, depends the power of life and work of the tissues, for it is on these the tissues feed. They absorb the nutritious fluid and the oxygen of the red corpuscles, and build them into new tissue substance.

The blood, however, is only an intermediary. The ultimate sources of tissue substance and energy are food and air. These have not only to enter the body in sufficient quantities to replace the wastage of tissue energy, but they have to be absorbed into the blood-stream. Raw food must be resolved into absorbable fluids. This is the work of the digestive juices of the mouth, stomach, and intestines. Air entering the lungs—the amount being determined by lung capacity and chest action—

must pass through the thin walls of the air cells and be absorbed by the hæmoglobin of the red corpuscles. The amount of food and oxygen absorbed by the blood will depend, then, the one on the digestible character of the food and the digestive power of the digestive juices, the other on the richness of the blood in red corpuscles and of the corpuscles in the absorbing agent hæmoglobin, and the rapidity with which the blood is circulated through the lungs.

The blood, enriched by the nutritious fluids absorbed from the digestive organs and by the oxygen absorbed in the lungs, is circulated round the whole body to nourish the tissues. The circulation of the blood is the work of the heart, which is a powerful muscular force-pump squeezing its fluid contents regularly some sixty to eighty times per minute into the distributing arteries. Finally, making its way into the tissues by the infinite ramifications of hair-like blood-vessels, the blood bathes the tissues through and through with nutritious fluid, and gives up to them the wherewithal of nutriment and oxygen to build up new substance and to store up the energy of life and work.

This, then, is the credit side of the life processes of the body. The sources for the renewal of the energy of life and work are food and air. These, by the help of the digestive, respiratory, and circulatory systems, find their way to the tissues and become transformed into muscular, nervous, or some other form of tissue substance, and represent an accumulated fund of muscular, nervous, or some other form of energy.

The debtor side of the life processes of the tissues is the destruction of tissue substance to supply the energy of life and action. Just as coal in burning gives off the energy of heat and, in doing so, decomposes itself into waste gases and ash, so tissue substance in breaking

down releases energy and forms waste substances such as carbonic acid, urea, and water. These waste products are not only useless in the bodily economy, but harmful. They are poisons which, if allowed to accumulate in the tissues and in the blood, will numb and finally paralyse the action of nerve and muscle. Especially marked is this harmful effect on the sensitive nervous tissue of the higher centres of consciousness. If the waste poisons are not removed from the body as fast as they are formed, their effect on consciousness is shown in a dulled sluggish movement of intelligence, in feelings of languor and tiredness, and in a disinclination to concentrated and persistent effort.

The scavenger of the body for removing the waste matters is the circulating blood-stream. Bathing all the tissues in its stream, the blood draws from them their waste poisons into itself. The poisons are, however, no less harmful in the blood than in the tissues that produced them. Their paralysing effects are not quite so locally virulent, but are more generally diffused throughout the whole system. For vigorous health it is essential they should be removed altogether. Their removal is the work of the skin, the kidneys, and the lungs. The glands of the skin abstract water and some salts, which escape from the pores as invisible and sometimes as visible perspiration. The kidneys remove urea and water. The lungs take away the carbonic acid gas. These organs, then, are the purifiers of the system. The blood purifies the tissues, and the excretory organs purify the blood. Thus, on a good circulation and an efficient action of lungs, skin, and kidneys, will depend the freedom of the nerves and muscles to perform their work to the fullest extent of their power.

The double process of tissue building and tissue destruction, and the work of the organic system that

ministers to the needs of them, can be summarized as follows :—

CONSTRUCTIVE SIDE OF LIFE PROCESSES.

Sources

of

Tissue Substance and Energy.

Food	**Air**
Digestive System	**Lungs**
Food resolved into Fluids and absorbed by Blood	Oxygen of Air absorbed by Red Corpuscles of the Blood

Blood

circulated by the Heart

to

Tissues

NUTRIMENT AND OXYGEN

built into

New Tissue Substance

which thus serves as a

STOREHOUSE

of the

Energy of Life and Work.

DESTRUCTIVE SIDE OF LIFE PROCESSES.

Tissue

destroyed to supply
the

Energy of Life and Work,

with the formation
of
poisonous

Waste Products

which are abstracted
from the Tissues
by the

Blood,

which in turn is purified
from

CARBONIC ACID	WATER & SALTS	UREA & WATER
by the	by the	by the
Lungs.	**Skin.**	**Kidneys.**

There are, thus, many stages in the complex work of ministering to the life of the tissues, and at each stage there are conditions on which healthy life and efficient work depend. Following the summary given above, we may outline these conditions as follows:—

CONDITIONS

determining

HEALTHY LIFE AND EFFICIENT WORK.

Food

should be
sufficient in amount,
nutritive in quality,
digestible in character.

Digestion

The digestive juices should be powerful in digestive ferments to resolve the various kinds of foods into absorbable fluids.

Air

should be
copious in supply,
pure in quality.

Respiration

The lungs should be capacious and the chest should have good expansive action.

Blood

should be
Nutritious and Oxygenated, and
circulated by a strong heart action
to promote

Active Tissue Construction.

Waste Products
of
Tissue Destruction
should be abstracted
by a

Vigorous Circulation
of the Blood
which in turn should be
PURIFIED
by an

Efficient Action
of the

Lungs, Skin and Kidneys,

Health and vigour, thus, seem to centre round the richness of the blood in nutriment and oxygen, and its freedom from waste poisons. The determinants of these qualities, further, resolve themselves simply into two main sets of conditions:—

1. The amount and quality of the food we eat, and of the air we breathe.

2. The vigour of the organs that nourish, oxygenate, and purify the blood.

The supply of food hardly comes within the scope of the school administration, though much more could be done than is done, to train the future mothers in a wise and provident housecraft. It is more than doubtful, however, whether instruction to young girls in the primary school would be of much avail in breaking down the improvident and foolish habits of the artisan class in the matter of food. The period between the "leaving age" and womanhood is too long for the lesson to last, especially as the girls' interests during this period are, as a rule, dissipated between work and recreation. The working-class girl is not a home bird. There is a greater possibility of success in instruction to girls during the period immediately preceding maturity. Could young women of from seventeen to twenty years of age be attracted into continuation schools, say for social recreation, they might be induced to take up courses in housecraft and the duties of motherhood, were these presented in a way that appealed to them.

Fresh air comes within the province of the school organization, and its provision presents problems that go far beyond the mere ventilation of the school buildings. Nature intended the young to grow to manhood in the open air. Her penalties in anæmia, consumption, rickety and scrofulous tendencies, debilitated nerves and weak digestion, if her laws are disobeyed, are sufficient

evidence of this. A good education, in the sense of "mens sana in corpore sano," cannot be given if boys and girls are cooped up within four walls during the greater part of their growing lives, no matter how efficient may be the ventilation of the rooms. Much of the work of education should take place outside the classroom in the playground, playing fields, open spaces, and in the country. An open-air school life of freer, wider, and more vigorous physical activity than that usual at present, has been our contention on many grounds. On the ground of health it is an absolute necessity. As we have suggested, this open-air schooling should take the form of practical measurements in the playground, streets, and open spaces, field-work in nature study and geography, historical excursions, and games in the playground and playing fields. More will be said later of the value of open-air schooling in summer camps, a form of schooling as yet in embryo, but the value of which in training healthy bodies, strong frames, initiative, resource and manliness is beginning to receive practical recognition.

The efficient action of the bodily organs—the second factor in health—is partly a matter of a good hereditary stock. Heredity, even in a democratic age, counts for much in both physical and mental life. The child of healthy parents begins life with a big balance at the bank of health. The weakly born struggles through to manhood severely handicapped. And "unto everyone which hath shall be given; and from him that hath not, even that he hath shall be taken away". One weakly organ affects the nutrition of the whole system which grows up stunted in all its parts, for all the other organs, affected by the weak member, lose tone and work with enfeebled action.

Although education cannot make weak machinery

work so well as that which is strongly built, it can make weak organs stronger. As a skilled engineer nurses some cranky engines and gets the utmost power out of them, so healthy conditions of life will make the most of the physical powers with which a child is endowed. Unhealthy conditions, on the other hand, aggravate the weakness, and quickly lead to active disease. There is, therefore, in the case of children naturally weak, all the more need to make the conditions of life during the period of growth such as will stimulate a vigorous action of all the bodily organs.

The natural stimulus to the action of the bodily organs is physical exercise. It excites the lungs to more rapid and deeper breathing, and the heart to a quicker and more forceful beat. Its effect on these organs is easily demonstrated in running and climbing. Let anyone run a hundred yards, or climb a stiff hill, and he will find his heart-beat nearly doubled, and his breathing approximating towards panting. The immediate consequences of the increased action of the heart and lungs are to bring more oxygen into the blood, and to circulate the more highly oxygenated blood round all the tissues. The tissues respond at once by more active nutritive changes. It is as if a strong tonic had been administered generally over all the system. While the increased breathing and circulation last, every part of the body lives a more intensely active organic life. Nervous and muscular energy is more freely expended and built up again. The digestive organs are stimulated to a more active secretion of digestive fluids. Waste products are more rapidly removed from the working tissues. The blood circulating more rapidly through the skin, lungs and kidneys, the activity of these organs is increased and the blood is, in consequence, more efficiently purified. Thus, by exercise, the whole of the nutrifying and purifying activities of the body are excited

to a more vigorous action, and the nerves and muscles respond by increased power and a more elastic tone.

The above account explains the well-known refreshing effect that exercise in the fresh air has on both body and mind. The change from a stuffy room to the open air, from sitting in an office to sharp exercise, seems to remove a drag from the wheels of life. From the first deep breath and the first brisk step it feels as if some depressing, devitalizing humours were being expelled from the whole being. The appetite is sharpened, the muscles gain a "spring," the nerves are braced, the mind is cleared, and the spirits become bright and cheerful. Energy of all kinds—muscular and nervous—is being spent and renewed more quickly, and vitality is on a higher plane.

In addition to the effect on general health and vigour, exercise has a remarkable effect on the muscles engaged in the exercise. Exercise, we have seen, produces an increase in the intensity of the nutritive interchange between blood and tissue. It also leads to a change in its character. During rest, the life processes of the muscular tissues proceed on so diminished a scale that the blood bathing the tissues has far more nourishment than is required to replace tissue waste. The tissues, therefore, proceed to use the nutriment for other purposes. They turn themselves into feeding organisms, and, taking the nourishment from the blood, store it up in their substance as fats and starches. The muscles, then, when at rest do not develop muscular power, but put on "flesh". If the rest be prolonged, as in the case of a man leading a sedentary life or loafing, the degeneration of the tissues is very marked in soft, flabby, limp muscles, incapable of strong contractile effort and of prolonged work. A burst of exercise quickly brings on fatigue and even exhaustion, from which the degenerate tissues but slowly recover. Fats and starches in the muscular tissues are not conducive

to contractile activity and resistant and recuperative power, but rather to the production of heat, perspiration and tissue poisons, and the clogging of muscular action.

The changes that take place in the tissues when they are working are quite different from the above. The muscular substance, by its own exercise, is stimulated to use the nutrition of the blood to build up contractile substance, and the more the exercise is continued, within limits, the more real working tissue is formed. The increase of working muscular substance is shown in the muscle becoming harder, and firmer, and bigger.

The revolution in the nutrition of muscle, when work is substituted for rest, is very clearly seen when a man goes into "training" after a long spell of rest. The effects of the daily exercise are at first very distressing. He becomes heated, perspires copiously, loses his breath quickly, and soon tires. He also loses weight. He is getting rid of the useless fats and starches that clogged his muscles during rest. The exercise is quickly reducing them to water and carbonic acid with considerable evolution of heat; hence the heat, perspiration, and panting. As daily exercise continues, he begins to "get fit". He ceases to perspire, and can stand prolonged exertion without fatigue. He begins to put on weight; but the increase of tissue is of quite a different kind from the fats and starches accumulated during idleness. His muscles are now building up increasing amounts of real muscular substance that has the power to do muscular work, and the effect is seen in their capacity for stronger and more prolonged effort, for resisting fatigue and, if fatigue does ensue, for a quick recovery.

What is true of muscle is true also of every form of working tissue—bone, sinew, nerve, or whatever it may be. Exercise the tissue and functional power is developed. Exercise the bodily frame and, in addition to

the effect on the muscles, the bones become larger and stronger, the sinews tougher, the joints more free. Exercise the brain, and the tissues of the brain centres strengthen their substance for the performance of brain work. In fine, power to do work comes by doing it; muscular power by doing muscular work, brain power by doing brain work. Prolonged rest, on the other hand, degenerates power. Hence, power is only maintained by constant and regular practice, a conclusion that is amply borne out by experience.

The body, then, lives the healthiest and most vigorous life, and develops and maintains the highest efficiency for work, if brain and muscle are exercised regularly up to the limit to which their vitality and recuperative power will respond. Indolence, idleness, a sedentary life are sources of weakness; mental indolence to brain power, physical indolence to muscular power and health. A boy and a man may take too much rest, just as they may do too much work. For full perfection of health and power, the need of unrelenting daily activity of every power presses upon one from the cradle to the grave.

Like most educational rules, the law of exercise should not be carried to extremes. There are limits beyond which, and conditions under which, exercise ceases to be a benefit. Exercise, after all, is only a stimulus. It is not a source of energy. Rather the reverse, it spends energy. It benefits health only because, in exciting increased nutritive activity, the general gain is greater than the loss. In physical exercise the body puts out to usury its tissue and energy. It spends in order to gain. The interest is drawn directly from the nutriment and oxygen of the blood, indirectly from the food and air supplied to the body. As physical activity increases, so, in like measure, must the

supply of food and air increase, if there is to be a benefit to health. If food and air in sufficient quantities are withheld, exercise can but run the clock down. To a half-starved child, strenuous or prolonged physical activity is not a tonic. It is a drain on a reservoir of energy that is only half filled. For a similar reason, vigorous exercise is harmful during convalescence after a prostrating illness, or if one is suffering from nervous debility or a wasting disease. In such cases, the tissues require all the food and air they can get to restore their diminished vitality. There is none to spare for strenuous exercise. The correct prescription in all such cases of reduced vitality is good feeding, fresh air, and a tonic of gentle exercise proportionate to the general bodily strength.

It is clear, also, that physical exercise in the foul air of stuffy rooms will not be beneficial to health. The foul air interferes with the double exchange of gases in the lungs, viz. the passage of oxygen from the air to the blood, and of carbonic acid gas from the blood to the air. Exercise, however, relies in a large measure for its stimulus on the increased quantities of oxygen absorbed. In a stuffy room this tonic effect is lacking. The working muscles and nerve centres are starved of oxygen and poisoned with over-doses of carbonic acid gas. The muscles are only kept working by the spur of the will and they quickly tire. The body, instead of being refreshed, is depressed; instead of being energized, is devitalized. To develop health and vigour, "in the fresh air" is a necessary adjunct to "exercise".

The body is a living machine. It differs from a machine of iron in that the energy of work is supplied by the destruction of its own substance. During activity, tissue is destroyed, energy is liberated, poisonous waste products are formed. Exercise, then, tends to be both

a drain on vitality, and, by the paralysing effects of the waste products formed, a clog on continued action. All is well so long as the working tissues have the vitality to stand the drain, and the nutrifying and purifying processes of the body can adequately deal with the situation. If, however, the exercise be so violent or so prolonged that the expenditure is greater than the muscles or the nutrifying organs can make good, or if the accumulation of poisons is greater than the blood can remove, then the muscles and nerve centres controlling them increasingly tend to act more slowly and reluctantly. The results of their own extreme action are tending to put them out of action. They are becoming fatigued, tired, and incapable of effective work.

It is certain that the paralysing effects of the waste products is felt as a drag on activity long before the drain on tissue energy becomes a serious matter. The muscles and nerve centres controlling them, overpowered by the poisons produced in them, respond more and more slowly and feebly. To get work from them the will has to spur them with increasingly powerful stimuli. When the body is fatigued the will has to carry one through. As the activity continues, the distressing effects only increase, until at length, if we are foolish enough to drive our bodies to such extremes, the will fails to secure any adequate response. The stage of exhaustion is reached.

Though the initial stage of fatigue is due largely to the waste products "slowing down" the responsive power of the machinery of movement, in the later stage of exhaustion the distress is the result of worn-out vitality. That there is a physiological difference between fatigue, the beginning of distress, and exhaustion, the final stage, is evident when the process of recovery is examined. Fatigue can be easily removed. Rest for a few minutes or hours, according to the amount of the fatigue, usually

refreshes the system and restores the working tissues to their former power. Exhaustion, on the other hand, is a more serious matter. The depression after it is great and lasting. Recovery from it is slow. It is evident something more is required than the mere removal of waste matters. In fact, the tissues have to renew their vitality. They have to rebuild their substance and restore their energy. This is always a question of time, and the weakening of the vitality of the tissues may have been so great that full strength may never be regained. Liability to break down under sudden stress or continuous strain may remain as a permanent weakness.

Fatigue, then, should always be regarded as a sign that exercise has ceased to be beneficial, and as a warning to take a rest. To carry fatigue to exhaustion is to go on working the body when it is crying out that it cannot respond adequately to the strain. There are, however, various ways by which fatigue can be kept at bay. If the frame has been hardened by regular daily work, it increases its power not only to do work, but also to resist fatigue. The physical vitality built up by regular exercise is of a fatigue-resisting order. It carries the frame through a heavy and long effort without any distressing effects. Similarly, in the case of resistance to brain fatigue, daily mental application builds up a form of nerve substance that can do intense and continuous brain work without succumbing readily to fatigue.

If a period of rest be taken when the first signs of fatigue are recognized, time is given for the nutrifying and purifying agencies of the body to refresh the working tissues and to restore their condition. Work can then be restarted with renewed vigour. Punctuated by periods of rest, work—physical or mental—can go on for a far longer time than if it be continuous. Change of occupation, too, has the effect of resting the tissues that

have been working. The change, however, must be a complete one. Entirely fresh muscles or nerve centres should be called into play, and the fatigued ones completely rested. Thus, a change from a reflective activity to a perceptual one, from mental to physical work, from concentrated application to a relaxing recreation, from fine and delicate finger movements to large action of the body is beneficial as rest.

However much local relief it may bring, change from one form of activity to another does not bring any general benefit. If work continues, no matter what form the work takes, the system as a whole will feel more and more the strain of work. The blood-stream will become increasingly less pure and less nutritious, and the organs of the body less responsive. Periods of rest and relaxation, fresh air, and meals will but delay the inevitable moment when any form of work will be felt as a drag. When that moment does arrive general fatigue of the whole system has begun to set in. The whole of the organs and tissues are beginning to respond more slowly, feebly, and reluctantly. The time has come to cease all work, and for general rest and sleep to repair the general mischief.

Exercise, we have seen, develops general health and vigour by the stimulus it gives to circulation and to breathing, and through them to the nutrifying and purifying activities of the body. The intensity of the stimulus of exercise is proportionate to the amount of work done by the muscles. A feeble muscular action confined to a group of small muscles, as in writing and drawing, has no appreciable general effect. Even larger movements of the arm will tire out the muscles long before the system, as a whole, responds to the activity to any great extent. The greatest effect on the system generally is produced by the large muscles of the legs, thighs, and

trunk acting together to overcome some resistance. These groups of large muscles can do a large amount of work in a short time and with the greatest ease. There is little fear of their being fatigued before the system generally has benefited. Circulation and breathing quickly respond to the largeness of their activity, as witness the well-known effects of running upstairs or hill climbing. Such exercises as these, then, are most easily beneficial to health, so long as the limits of fatigue are not overstepped, and they are supplemented by food and fresh air. Indeed, all exercises are good in which the body moves or lifts its own weight by its larger muscles, as in running, skipping, and climbing, or struggles with its whole frame to overcome a resistance as in swimming and wrestling, to which examples may be added football, hockey, fives, jumping, leaping, tug-of-war, hand-ball, and many other games and contests.

Especially important to the efficient performance of physical work is the action of the heart and lungs. These organs are constantly at work night and day, maintaining the power of the human machine. Their action is automatically adapted to the work the body is doing. If the body be at rest, the frequency and strength of the heart-beat, and the frequency and depth of inspiration, are reduced to a minimum. As the amount of work done by the body increases, so do the heart and lungs augment their action. Hence the power of the body to engage in strenuous work, and to continue it for considerable periods, depends on the power of those vital organs to rise to the demands thrust on them. It is a well-known sporting phrase that "a man runs with his lungs". If he tries to work beyond his breathing capacity, he becomes breathless and fatigued. It is equally true that he cannot work beyond his heart power without doing himself an injury. Thus, the power to work vigorously,

and to maintain such work continuously, does not rest simply on the strength of the muscular frame. It depends, too, on the strength of the heart and the expansive capacity of the lungs. Education, then, must endeavour to increase the working efficiency of these organs, especially in the case of those classes of pupils who intend a career of physical labour.

The heart is a muscular pump. Its rhythmic contractions squeeze the blood out of its inner chambers, and force it through the arteries to the tissues, where it spreads out through the innumerable thread-like tubes that ramify like a close interlacing network through their substance. The heart beats normally from sixty to eighty per minute; in times of physical stress or emotional excitement, the frequency of the beat may rise to one hundred and twenty. It works day and night. Its beat during life never stops. Hence, rest for the heart is only relative. The heart has its easiest time when all the muscles are relaxed, as in sleep or in lying down. On these occasions the working tissues require only a minimum of nutrition and oxygen, and the heart-beat is automatically reduced to adapt the circulation of the blood to their diminished wants. When the muscles are actively working, the demand for nutrition and oxygen increases, and the heart responds with increased force and frequency of beat to meet their greater needs.

The heart is strengthened, as all muscle is strengthened, by exercising itself vigorously. The usual limits of fatigue and conditions of food and air must, of course, be preserved. Like the arm or leg, it develops a power suited to the normal demands made on it. If a person's mode of life be sedentary, or one of loafing and idleness, his heart becomes adapted to the small stimulus of a small physical exertion. A violent effort or a prolonged

physical task finds such a person's heart unprepared for the emergency. Fatigue soon ensues and, if the work still be continued, increases to exhaustion, from which the heart may recover only after weeks of rest.

Such cases of heart weakness are only too common. A merchant or clerk, sitting in his office day after day during the year, suddenly rushes for a holiday to the mountains and the moors. He undertakes long climbs and heavy walks day by day. At the end of his holiday, instead of finding himself in the pink of condition, he may complain of dizziness, faintness, and palpitations. His heart, which has adapted itself for the stimulus of a sedentary life, has been unable to stand the excessive and continuous strain put on it. Driven to exert itself beyond the limits of fatigue, it has become weakened instead of strengthened by the exercise. Where a gentler exercise, indulged in day by day and increasing gradually in amount and length, would have continuously strengthened it, until finally it would have developed the power to bear a sudden spurt or a prolonged effort, the daily urging it beyond its strength has drained it of the small power it possessed.

Regular daily exercise, then, develops heart power; and those exercises that are suited to the training of health and vigour are also appropriate for strengthening the heart, since they affect the health through heart action. Games and contests such as football, running, wrestling, climbing are admirable for the purpose, provided that they are not indulged in to excess, or in a spasmodic way, or after illness.

The function of the lungs is to bring as much air as possible into the system at every inspiration. Efficiency in breathing, therefore, depends on (1) the air capacity of the lungs, and (2) their expansive power. The expansive power is measured by the difference between the air

capacity of the lungs at the height of an inspiration, and that at the end of an expiration. It is, thus, the true measure of the amount of fresh air that can be brought into the lungs at each breath, if the machinery of breathing works with its full power. Education, therefore, is concerned with developing in each pupil good lung capacity, good expansive power, and, we must also add, the habit of deep breathing.

Development of lung power is easy, if suitable measures be adopted. Like all living organs, the lungs, with the accompanying respiratory machinery (the ribs and muscles of the chest walls and the diaphragm), grow towards a power that is habitually demanded of them. If a person's daily occupation, as in the case of a blacksmith, forces him into habitual deep breathing, he develops a broad, deep chest with a correspondingly large expanding capacity. On the other hand, the clerk of sedentary habit tends to a narrow and shallow chest with poor expanding power. Tissues adapt themselves by growth to strains and stresses. Lungs and chest that are continuously being used to the utmost extent of their power grow, and such development is all the more rapid if it takes place during the period of natural growth. It follows, then, that all those exercises, contests, and games that promote health by exciting deep breathing are admirably suited for developing breathing power. Such exercises are football, fives, running, wrestling, climbing, etc. More artificial means can, of course, be adopted as, for example, deep breathing exercises. These are useful for teaching the correct mode of breathing through the nose, and by expanding the lower part of the chest (its most capacious portion). It is not advisable, however, to use such exercises for long by themselves. They should be combined with singing, elocutionary, running, walking and arm exercises and other forms of physical

movement, in order that a control of breath adapted to each type of action can be taught as well.

Having established the principles that should regulate the development of vigorous health, we are in a position to apply them to the weekly routine of the school. It is clear that a considerable portion of the school pursuits of each week should be open-air physical occupations. These will include such weekly exercises as field-work of some kind, excursions, and the more vigorous effort of playground and field games and scouting (where it is introduced as a school pursuit). Every day there should be at least one period of vigorous open-air exercise, and at least twice a week this exercise should be sufficiently energetic to act as a special tonic to the system. These more vigorous games or exercises should be followed by bathing.[1] We do not think we are asking for too much time for games and contests if we propose that there be each week two periods for gymnastic contests and two for playground games, each half an hour in length; to which should be added a longer period of one and a half to two hours for field games or their substitute in scouting or other country sports or contests. It may be remarked here that vigorous exercise should be taken at a time when the body is fresh. The full benefits of exercise cannot be secured when the body is jaded and tired.

The indoor work will be partly practical work in the handicrafts and mathematics workrooms and partly study in the classrooms. For the practical training in skilled work to be effective, we cannot conceive less time being spent on handicrafts than two periods of one and a half hours each. One should be spent in the metal-work shop, the other in the woodwork room. A further period of one and a half hours will be required for practical

[1] See p. 231.

measurements and mechanics. All rooms, such as the gymnasium and the workshops, in which bodies of pupils are engaged in physical exertion, should be very amply ventilated, and regularly flushed with fresh air from open windows and doors. During physical exertion, both breathing and perspiration are accelerated, with a consequent rapid fouling of the air.

The organization of the indoor study should do all that is possible to counteract the evils of sitting. The rooms should be large, well-ventilated, and regularly flushed with fresh air. We suggest that certain pupils be appointed to carry out this duty at definitely stated times. It is our experience that boys can be trusted to perform such a service with greater regularity and conscientiousness than can teachers. The desks should be designed to discourage stooping over books. Teachers, too, should not be afraid to conduct lessons with the boys standing, although too continuous standing in one attitude is very fatiguing. After each lesson period, the class should indulge for five minutes in singing or sharp physical exercises with the windows open, or, if there are facilities, in a brisk run round the playground. We have known a class depart from their classroom in single file at the double, run round the yard and back up the school staircase and be in their places again within five minutes, greatly refreshed and brightened for their brisk exercise. These brief periods of sharp exercise, every now and again, stimulate the circulation, prevent the blood stagnating in the larger veins of the abdomen, and oxygenate the blood. It is certain that the five minutes thus spent are much more than recovered by the greater efforts that the pupils make after them.

The organization of each day's work should give considerable variety of occupation, and ring the changes on reflective, perceptual, physical, concentrated, mechanical,

and recreative employment. Especially should long continued sitting in desks and over books and close application to fine work be avoided. The time for work requiring close mental concentration is when the brain is fresh. The best periods for this work are in the early morning and early afternoon. As the brain begins to get tired, work of a more mechanical order can begin, and the day should end with a pursuit of a more relaxing or recreative character.

It cannot, however, be too strongly urged that no device of ventilation, hygienic desk, occasional physical exercise, or time-table organization can be anything more than a measure remedial of the evils of classroom work. These are not measures for the active promotion of a vigorous health and growth. Nor will they develop a muscular frame strong and fatigue-resisting. For vigorous health and strength to be living ideals of our primary school education they must show themselves in measures that are more than medicinal, remedial of evils, and passive in their nature. We can build our hopes of a stronger, healthier, more skilful and manly generation only on a school life that is generous in vigorous physical pursuits carried on in the open air.

CHAPTER IX.

THE STAFF: ITS TRAINING AND ORGANIZATION.

WHAT the soul is to the body, the teachers are to the school. They are the fount of its spiritual life. Whatever of high effort, of honesty and truth in work and workmanship, of keenness for learning and skill, of liking for literature, art and nature, of healthy comradeship, of manly hardihood and chivalrous fair play marks the tone of a school, is due to the presence of these qualities in a striking degree and in a sympathetically active form in the members of the staff. Such qualities may and do, we are glad to say, exhibit themselves frequently in individual scholars, because of the strength of their innate tendencies or the influence of the home; but, if they are to be the breath of the school's spiritual life, on which the seeds of spiritual life in the scholars are to feed and from which they are to draw their strength, then they must emanate from the staff in so pervading and dominating a form, and yet in a manner so sympathetically attracting, that each scholar falls a victim to their influence, and the tone of the whole reflects their living power. Fortunate is the school with teachers who can realize the spiritual side of its aim. Their life becomes a mission; their work, a work of love. Much can be denied a school in buildings and equipment without doing any more harm than can be avoided or repaired by teachers of initiative and resource; but deny it men of high aims, of manly strength, of broad human outlook on

life, of a master's power in what they have to teach, of the human sympathy that draws them into fellowship with the young—give it machines of routine and not men—and you sap its spiritual life. Teaching machines may instruct and inform, they may develop the power to think and to do, but what they produce is like a statue which, exhibiting all the outward semblances of man, yet lacks the inner fires and the quickening spirit of the soul. Waste of the spiritual forces of a school is the saddest of all waste. Yet, it is to be feared that the present mode of training teachers and of organizing them into the educative forces of a school misdirects and even suppresses much of the spiritual power that is so valuable an asset to a school, and, by developing a mechanical routine in teaching and in discipline, brings the dead hand of formalism to cramp if not to crush out all movement of intelligence and spirit in teachers and taught.

We are too prone in all matters pertaining to schools to bind ourselves by tradition. We are afraid of the new, suspicious of change. Yet in these times when new forces are making themselves felt in the social economy of the nation, when the old problems have changed, and new questions have to be solved, we must face the situation with open minds, not in the revolutionary spirit of overthrowing the past, but with the clear recognition that new conditions demand new methods. Then, having grasped with a broad comprehension and with clear apprehension our educational conditions and needs, we should proceed to plan out an organization to deal with them on business-like lines. All organization should be business-like. Organization does not discuss ends and aims; it concerns itself not with theory. It accepts these and tries to realize them in terms of matter, space and time, of bricks and mortar, of apparatus, of time-tables and the like. Organization, then, is the combining and

arranging of means to effect an end; only in education we must realize with our whole strength that the end is a spiritual end, and, therefore, that the most important part of the organization is to generate the greatest spiritual force in the teachers and bring it into action on the pupils with the greatest momentum.

If organization should be business-like, let us examine some of the ways of business, and consider if they could not, with advantage, be applied in the organization of school forces. In business the key to success, after such human qualities as concentration and application, is specialization of effort. Specialization produces the greatest efficiency in result with the utmost economy in time, energy, and material. In the manufacture of an article where many processes go to the making of the finished product, each process is performed by a special set of workmen trained to that especial work, and each portion of the work is carried on in a room specially equipped for the work to be done there. In this way time and energy are not wasted for want of proper tools and by incompetence in the handling of them. Let us see, then, if this principle of specialization, so important in industry, cannot find some application in the sphere of school education.

The school attains the end of preparing its pupils for life by engaging them in the learning of certain subjects and in the pursuit of certain occupations. To be successful in this, its instructors should be good teachers, that is, they should induce in their pupils effective learning of the right kind. But the power to teach is not a general power in the sense that the person who possesses it can teach anything and everything. It is not a master-key to open the doors to every subject. Power to teach is a function of one's power over the subject one is teaching, and rises and falls with that power. Of course, it is

more than this. It involves, too, a power over boys. The teacher should be familiar with the peculiar workings of the boy mind. He should know what kind of things and activities arouse his interest and will stimulate effort, and what modes of presenting knowledge will awaken thought and imagination. Such a knowledge of boys cannot be learnt with any fulness and insight from books, nor can it be formulated in any abstract terms. The true teacher's power over boys is like the good bowler's power over the ball. The bowler gets wickets, but can hardly say how he does it. He complies with the laws of motion but he doesn't know them, and would not be helped by them if he did. In a similar way, though not by any means to so great an extent, the good teacher finds it difficult to formulate his knowledge of boys. His power is shown in the more or less spontaneous adaptation of his teaching and managing to the varying signs of interest, effort, and thought of the living boys in front of him. He deals with the situations as they arise almost instinctively, certainly largely automatically. By what perceptions and intuitions he obtains his quick insight into each situation, it is difficult to say. Certainly, sympathy with boys and intimate and close experience of them and of the way they respond and show response count heavily in success. In so far as a teacher has this power over boys, he has a general power to teach, not all things, but those things of which he has a living and fruitful knowledge; which brings us round to the old question discussed before, as to the characteristics of real as distinct from sham knowledge.

The effective knowledge in life we have seen to be not a possession but a power, a dynamic force that impels to action and to new thought. Its essential characteristics are life and growth. Like the tissues of the body it lives by ever searching for food, assimilating it and

turning it into the power of continued life and growth and action. It is never still and quiescent. Movement, ferment, action of mind and body are its essence. To stagnate is to go back. It is such a knowledge, such a living, growing, moving power that a teacher of a subject should have in a marked degree. Ideas, inquiries, possible solutions, paths of progress, forms of application should be fermenting continually in his brain. He should be in touch with the real sources of knowledge, feeding his mind by direct experience of things, and stimulating it by the messages of the great apostles of truth. He should be continually turning his knowledge over, finding new meanings in it, new forms of expression, new lines of advancement and new outlets for applying it, and, throughout, linking it up with the real lives of his pupils in the present and in the future. So his knowledge would be a living force, and not a bare formula, and would inspire in his pupils a learning that would live and grow.

If the teacher's knowledge is that of the mere word, crammed from the facts and artificial exercises of the school and college textbook, he may fill his pupils' minds with facts, cram their heads with information, drill them in the formal routine of exercises, and give them the sham knowledge that satisfies an examiner, but he cannot bring his pupils to the living fount of knowledge, nor stimulate their imagination and thought to the ferment of inquiry, nor lead them to fruitful application, nor inspire in them spontaneous attraction and build up permanent interest. He cannot inspire in his pupils more than is in himself, and the spirit of life and growth is not in him.

Further, power in each subject has features peculiar to itself. In some, like literature, music and art, taste has a pre-eminent position; in some, like history and geography, full power comes only after wide and full reading and with the help of a sympathetic imagination;

in some, like natural science, perceptual inquiry into objective realities is a marked feature; in some, like handicrafts and drawing, the craftsman's skill and feeling are the basis of success. Success in any branch of learning or skill thus requires powers of taste, intellect, imagination, and skill, different from those required in other branches. How, then, can one teacher be successful in all? And, above all, how can powers in every subject in the curriculum be developed to such a strength in one man as to be the founts of inspiration for others? No, to one it is given to excel in one branch, or perhaps in one group of allied subjects, to another in a different branch. To none is it given to be a master in more than a few. In the others, he must be content to be a menial workman, grinding out a more or less mechanical task.

A good educational organization should recognize this limitation of human interests and human power, as a factory organizer recognizes the limitations of physical skill. It should seek to organize its human forces in such a way as to develop to the full the individual strength of each, and bring the full force of the combined strengths of the staff of a school to bear on the pupils with the greatest momentum. In other words, efficiency lies in each teacher, during his training, specializing on his strong side, in the line of his native interests and capacity, and, when in the schools, centreing all his teaching efforts on the particular pursuits in which he has a living and fruitful power.

Such a system of training and organizing a staff is entirely opposed to the mode of training and organization at present adopted. The present system acts on the principle that a teacher can be trained to teach all subjects, if not equally well, yet with passable efficiency. There can be no more vital mistake than this, and no sadder waste of the human forces of education. The

system only too often succeeds in attaining the result of teachers teaching all subjects equally badly, and none with real success.

Those who have watched the teaching in our primary schools with critical understanding are struck by the marked formalism that lies like a dead hand on a large portion of the teaching. We do not wish to find any fault with the personnel of the staff of primary schools. The primary school teacher is, as a rule, a hardworking, conscientious, and capable manager of bodies of pupils. But, in his power over branches of knowledge and forms of skill, he cannot escape from the system that has produced him, and in which he works. That system tries to make him an all-round teacher of everything, with no regard to his aptitudes and inclinations. So he has drilled into him the elements of every branch of knowledge and every form of skill that are required in primary schools. He reads a little, a very little, literature, history, and geography. He acquires a little, a very little, skill in composition, singing, drawing, handicrafts, and physical exercises. To acquire this varied information and skill in two short years, he resorts to cram—the easiest of all means of attaining the semblance of knowledge and of satisfying an examiner. His authorities are textbooks and notes. Hardly ever in any subject he is studying does he read and digest any important authorities, or dig down to the ultimate sources of knowledge. Hardly ever does he engage in any independent inquiry. Compelled by the system to be a mental sponge, he imbibes and memorizes. True spirit of learning, love of intellectual culture, zest of inquiry, initiative, independent thought, hardly find any opportunity to blossom in the teacher's soul, for his mind is too little fed from the true founts of learning on the one side, and in too little touch with the practical and intellectual

needs of life on the other. Knowing little of learning but cramming and memorizing, able to fathom no deeper than the formulæ of the textbook, how can he lead his pupils to learn in any other way than he himself has learnt? So the formalism of the textbook, of cram and of the routine of mechanical exercises, out of touch with reality and life, repeats itself from teacher to taught, and from generation to generation.

During his period of training, the intending teacher not only learns the many and various branches of the primary school curriculum, but is required to learn, also, how to teach all these subjects. It being impossible, in so short a time, to consider the methods of teaching in relation to the details of each subject and to their effect on the mind, emphasis is laid on the general modes and forms of teaching in the hope that a knowledge of method will bolster up an ignorance of the subject-matter. So, in a training college there is presented a most curious phenomenon. There are students learning the methods of teaching English who have read little or no literature, who cannot turn out a decent page of English composition, and whose powers of oral reading are sometimes more feeble than those of the children they are called on to teach.[1] What is true with regard to English, is equally true with regard to every other branch of knowledge and skill taught in a training college. Students are learning the modes and forms of teaching subjects with which they themselves have, too often, only a lifeless textbook acquaintance.

Such a mode of training teachers is fatal. There is, of course, a study of education that can be carried on

[1] It is no uncommon thing in the practising or demonstration school of a training college, to find that the pupils can speak, read, write, and compose better than do some of the students in training who are brought in to teach them.

apart from the study of the special school subjects. The relation of education to the intellectual, moral, social, practical, and physical aspects of life: the general lines on which the child conducts himself as an individual, as a member of a school society, under discipline, free from control, and in pursuit of learning and skill: the stages of development of the child's powers of body and mind under the influence of the home, school, and streets—these are educational topics that can be studied generally. They will give an outline framework about the ends of life, and about the development in the pupil of powers to attain these ends that the teacher can fill in with living detail as he gains closer acquaintance with life and his pupils. All this is to the good, for, if studied in the right way, it gives an attitude to teaching that makes for enthusiasm and for reflection on the problems of school education. When, however, the training takes up the teaching of the various school subjects, general formulæ are of little use. If it were simply a matter of imparting the formulæ of knowledge, then a general teaching formula might suffice. But the study of each branch of knowledge and of skill, as we have seen, demands from the students an intellectual and emotional atmosphere and power peculiar to itself. It is because the creation in the pupils of this atmosphere and power is the essence of good teaching, that a teacher can, with hopes of success, neither teach a subject, nor study the teaching of it, until he has experienced that spiritual atmosphere in his own being, and won that intellectual power by right learning. There can be no fruitful study of the methods of teaching apart from this. There is no method apart from matter, no form apart from content; and the matter or content of teaching is not the lifeless expression of knowledge in textbooks or on the lips of the teacher, but the ideas that are living and growing in the teacher's soul; and the

method or form of teaching is the mode in which the living soul of the teacher induces life and growth in the souls of his pupils.

It is not surprising, then, that the training in teaching that is common at present leads to a mechanical routine of instruction, empty of all that inspires intellectual and spiritual life and growth, and that a vicious formalism saps the vitality of most of the pursuits carried on in the primary school.

The vicious effect of his training is seen in the teacher's work in school. Crammed with the elements of all the school subjects, brought up to regard memorizing as the only mode of learning, puffed up with the idea that "method" is a substitute for knowledge, he enters school. Like a middleman in commerce he peddles out his wares, having little interest in them, little knowledge of their source and their bearing on life, content to impart what he possesses with the least trouble to himself and with the least agitation among his pupils. Continually retailing the same bare round of facts, and performing the same dull round of exercises, he finds little incentive in himself or in the school work to pursue his own studies. Year by year he imparts his stock-in-trade, and year by year it becomes more threadbare and worn. He soon acquires the knack of "teaching" without causing undue commotion among his pupils, but this only accentuates the machine-like monotony that is crushing all spirit and freshness out of him and his teaching. He finally becomes a teaching machine. The poison of the system has completed its work. As a teacher he is dead.

Such criticism on the primary teacher may seem severe. It is a criticism, however, not on him, but on the system of which he is a victim. Every teacher does not succumb entirely to the poison of routine and formalism. We are glad to say we know many teachers whose

liking, innate or cultivated, for some branch of knowledge or art has been too strong to be utterly crushed by the daily round of teaching a multiplicity of subjects. In this branch their knowledge is alive, their teaching sparkles with freshness, their imagination and thought move freely and spontaneously pushing their way into new realms of inquiry and suggesting new methods of teaching, and their pupils sympathetically respond with lively interest, willing effort, and creative thought. Such a power of knowing and teaching, however, lives not because of the system but in spite of it. The system condemns every teacher to try to know everything and to teach everything, and its worth is to be judged not by what thrives in spite of its blighting breath, but rather by the tone and spirit of the knowledge and teaching in those many other subjects for which a teacher has no liking and in which he has no living power. By that test the system stands condemned; and we condemn it because the inclination, aptitude, and power being present in many teachers in an intense form, it ignores them and forces each and all, whatever be their strength and weakness, to the same task to make of a large portion of it a weary grind of monotonous routine.

If such is the result on the teachers, what is the effect on the pupils? Look through the primary schools of England and discover if generally the pupils in them are stirred by a love of learning, a zest for truth, zeal in inquiry, and a spirit of true work. No one can assert that such features are common in our schools, and yet the teachers are dealing with the young, whose freshness and spontaneity in inquiry and action are perhaps stronger than at any other period of life. The system of training and organizing the staff has crushed the spirit of learning out of the scholars as it crushed it out of the teachers. No human being can bring to the teaching of so great a

variety of subjects the freshness, sparkle, and inspiration that come only from a mind keen with enthusiasm, and quick with growing ideas; and these, alone, will inspire a living growth in the pupils.

The results of the system are seen in teachers of English who do not read; teachers of history and geography whose sources are the school textbook; teachers of nature study who have never explored the fields and hedges of their own countryside; teachers of drawing who, if they own a sketch-book, would blush to show it; teachers of music who have no ear. Can anyone wonder that the pupils are kept year after year in the most elementary stages of every branch of knowledge and skill that they study, that seldom do they advance to any power of value, that they are filled with no enthusiasm for learning and work, that they acquire no real power of independent action, that they cannot read or study for themselves, and, finally, that they perceive no value in what they learn? The most fatal criticism that is being passed on the present system of teaching in primary schools is the delight the primary school boy has in leaving it. After ten or eleven years of age the boy's outlook on life is changing, and he is beginning to evaluate things in terms of the needs of his present life and of his future employment. He finds the school pursuits out of touch with both and, in consequence, the teacher finds it increasingly hard to interest him in studies that do not live either for him or his teacher. The boy longs to break away to realities, to deal with the things that matter, and he looks forward to the leaving age to bring him into living contact with the important things of life.

In the senior artisan school there is no time for waste of teaching effort. There is beginning the more serious and more direct preparation for a life beyond the school,

and three short years are all too little a time to give the boy such interests and power as will fit him to start on the further journey to manhood, which he must take largely without help. At the end of his schooldays the tendencies to culture, to practical power, and to physical manhood should be more than weak seedlings struggling for life. Their roots should be taking firm hold. Their branches should be spreading and their leaves expanding to broader realms of air and light. Even should there be some buds of promise opening to prove to the boy that his school work has purified, sweetened, and strengthened his life, and that it has been something more than a task and a preparation.

Further, the artisan boy is beginning to be more conscious of himself as an individual in a world of competition. He is looking ahead to dealing with the hard facts of life and to earning his own living with his hands and brain, and his fighting instincts and his growing sense of independence are welcoming the struggle. With his mind increasingly fixed on these realities, he is not content to occupy his time in school with elementary routine and formalities. His instincts, especially the practical and physical, are asking for food, and for developed power to deal with the needs of life as he sees them. He is ready, nay anxious, to work, and the capacity of his intelligence and of his physical powers will carry him far, if only the teacher can and will take him along the line of his interests. But marking time over mechanical routine, and circling round and round in the elementary stages of some branch of knowledge or skill, disgust him. Do not let us wrongly estimate the boy at this age. He wants to advance; he is willing to make effort; he has the capacity for making good progress in knowledge and skill; but he must feel the value of what he is asked to do.

On every ground, then, the pupils of the senior artisan school need teachers who by their enthusiasm can inspire interest in what they teach; who by their power over their subject can advance the pupils to a stage where value is perceptible; who by their teaching can feed and uplift the intellectual and practical tendencies of their pupils. Only subject teachers can do this. Class teachers are so overwhelmed by the impossibility of preparing themselves to teach a multiplicity of subjects, that they fall into the habit of preparing nothing at all. The subject teacher, on the other hand, limited to a narrower field in which his interests and aptitudes move freely, has every incentive and opportunity to make himself a teacher of power. Further, his interest stimulates him to study methods of teaching, and he is not content with a formula to be mechanically applied, but seeks a method that will make his teaching a living force.

Staffed by such teachers, the primary school would begin a new era in its history. In the past it has failed to win the approval of its elder pupils who in general have tacitly condemned its teaching. With teachers whose knowledge lives in their heads and hearts and hands, there would spring up a new spirit of learning. The pupils would feel that school learning had a value for them both in the sphere of their practical interests, and also as an uplifting and sweetening influence in their lives.

The revolution, or rather evolution, from class to subject teachers carries with it a change in the mode of training teachers. The training should be conducted so as to develop their powers as learners and teachers in the line of their inclinations and aptitudes. But a wider question is involved than that of training the power to teach a subject. A teacher should be more than an instructor, he ought to be an educator.

The qualities demanded of a teacher may be divided

into those that are fundamental to the work of an educator, regardless of the nature of the subject taught, and those determined by the subject itself. The former class of qualities is required by all teachers. There is, then, a certain portion, or rather aspect, of training that must be considered common to all, and it is important to know exactly what this is.

One who undertakes the guidance of youth towards the goal of manhood must himself be a man. He must have those qualities of intellectual culture and upright and manly character that are recognized as the attributes of English manhood. Further, a teacher should have the teaching personality by which he can dominate the boys' youthful impulses, win their respect, and yet do these in a manner to draw their affection. To this personal power should be added an aptitude in instructing, which comes from viewing problems from the standpoint of youth, and not from the high pinnacle of the advanced student.

Culture, manhood, and teaching personality and aptitude are, then, qualities demanded of all teachers, and the question naturally arises, "How is the training college to develop them?" There is still heard at times the voice of the "untrained man" calling out that "a teacher is born not made". Every one, of course, must admit that much of manhood, of the direction culture takes, and of teaching personality are due to innate temperament and power. Yet there is much that is due to wise and sympathetic guidance from the cradle onward. This is admitted in the case of culture and manhood, or why do schools, colleges, and universities exist? It is often denied of teaching personality by those who condemn training in teaching. The teaching personality is largely evolved from the egoistic, social and sympathetic tendencies which open out first under the home

influences. These become stronger and more manly in the social competition and co-operation of the school and world. Those who have, in their home or school life, been placed in a position of authority over and responsibility for others, have their innate tendencies early moulded on authoritative and sympathetic lines. Indeed, the authoritative personality is largely the outcome of occupying positions of increasing responsibility from boyhood onward.

Much, then, of teaching personality is in the making long before a student enters a training college, and can be attributed in a large measure to a happy combination of a good home, a good school, and a good circle of friends. In the light of this analysis, there is much to be said for the old system of pupil-teachership which, whatever its evils, and they were many, encouraged a teaching personality at a time when the character was impressionable. As for the present bursar system, it is to be feared that, unless the innate tendencies on which the teaching personality is based are drawn out in some way before the boy arrives at the training college, they are doomed to a warped and stunted growth, and never will gain that instinctive spontaneity that is the result only of an earlier growth in a favourable environment. Again, in choosing candidates to be teachers, great importance should be attached to the homes from which they come. A cultured home, a circle of cultured friends, a home discipline that encourages a wise social activity are great assets in the making of a teacher.

The work of the training college is to encourage still further the teaching personality, partly by a many-sided social life in the college, and partly by directing its action towards the influencing of the young in the classroom and in their games, pastimes, and excursions out-of-doors. The student's power over pupils should not be

starved by a merely classroom practice; it should be broadened, and made freer and more intimate by directing bodies of pupils in all kinds of outdoor pursuits. A training college school camp, for example, is an admirable set-off to the more formal training carried on in the school buildings.

On the culture side, the training college should provide for each and all a generous and liberal curriculum. No training can be considered adequate that does not give a broad and inspiring instruction in literature, history and geography, and natural science. These should form the broad basis of every man's intellectual culture.

A teacher, we have said, should be an educator, and the theory of education is more than a knowledge of the methods and devices of the classroom. A broad grasp of education demands a clear conception of the ideals of life, of what, indeed, might be called a philosophy of life. No one can intelligently discuss the development of human powers—intellectual, moral, social, and physical—without having outlined to himself with some definiteness ideals of culture, virtue, society, and physical manhood. That education and a philosophy of life are intimately linked together, is evident in the works of those philosophers from Plato to Spencer whose conceptions of life have influenced their age. They all begin by elaborating a system of philosophy, and end by constructing a system of education. How could it be otherwise? Having formulated their ideal of what man's life should be, they are faced at once with the problem of the realization of it through the education of the young.

The study of education further rests on a knowledge of the powers of the mind and body and of the conditions that determine their development. These powers, however, are many, and to study the development of one, say the intellectual tendencies, and ignore the

others is bound to distort one's view of education as the development of the whole human being. Hence development should be studied broadly in its biological, physical, intellectual, moral and social aspects. It should be noted, however, that this study is not the study of the abstract sciences of biology, physiology, etc., nor is it the consideration of the application of these sciences to education. Psychology and applied psychology, for example, are of little direct value in the art of teaching. The psychological study that is essential to education is that which deals with the development of the human intelligence from infancy to manhood along those lines that will culminate in a manhood of intellectual, moral, social, practical and physical power. At every stage the study of it should be dominated by considerations not only of what innate powers of mind and body the child, boy, and youth possess, but of the ideals of life towards which education should develop them. It is a study, then, not of psychology by itself, but of a psychology of development determined by logical, ethical, social, practical and physical ideals of life; which is quite a different matter. Similar considerations hold, too, of the study in their educational aspects of logic, ethics, and physiology, which, it is obvious from the above remarks, should be studied in close relation with the psychological aspect of education.

A philosophy of life and the sciences of human development, then, are fundamental studies in the training of a teacher, if he is to be something more than a mere classroom worker. The catalogue of these may appear somewhat ominous to the student, but in reality it is not so ominous as it seems. A full and detailed study of them is not necessary, for a teacher does not need to be an expert in each. The study of them gives very little direct help in the actual work of teaching, but it does

cultivate an attitude of mind that is all-important to the teacher. The course in them should be broad and stimulating, but not detailed, and certainly should leave untouched questions that are merely metaphysically philosophical, formally ethical or psychological, or purely physiological. The educator has no use for these. What detailed work is done should be by the introspective examination, by the student, of the nature and development of those interests, habits, thoughts and ideals which he perceives govern his own life, and by the examination of the activity of pupils in the classroom and in their outdoor life, to discover the nature and operation of those tendencies that express themselves in the pupils' feelings, thoughts, and actions.

Finally, in the training that is common to all teachers, must be included instruction and practice in those arts that may be called the instruments of teaching. A teacher, like a preacher, depends on his voice, and both should train themselves to use it with clearness and with expressive power. In addition to his voice, a teacher is dependent on the blackboard, and writing and sketching thereon—great acquisitions—do not come by nature alone.

Such is the training that should be common to all teachers, to the teacher of literature equally with the teacher of nature knowledge and handicrafts. Our schools have no use for the specialist without manhood, without general culture, without teaching personality, and without a broad and rational outlook on education. A teacher, however much his interest is concentrated on one branch of the school curriculum, is first and foremost an educator of boys, seeking with the co-operation of others to fit his pupils for life. He will do this well just in so far as he makes his influence felt in the school as a whole by openly identifying himself with its aims, its

discipline, its outdoor games, and its social life. If he limit the horizon of his duty and his influence by the four walls of his classroom and by the hours appointed by the time-table, he will fail in the more important part of his work, however successful he may be in the narrower work of instruction. Some such advice is not out of place at present. In many schools subject teachers show a tendency to shut themselves up in their own subject, and in their own little domain. In doing this they are negating the fundamental conception of a school which is a living community of teachers and scholars. The school is a real community influencing the character of each pupil when all, teachers and scholars, feel the corporate life and work for the common end. There is no real school if there be merely a number of instructors, in a number of separate rooms, giving lessons to a number of pupils who successively gyrate round a number of separate centres. It is because a teacher has to play a full part in the general life of the school that much of his training in culture, in educational philosophy, and in teaching personality should have a wide and general bearing and be taken in common with every member of the training college.

The student being a prospective subject teacher, a portion of his training should proceed on special lines. Each student should have the option of choosing some branch of knowledge in which he will advance to a wider range and with fuller detail than in the subjects of the general curriculum. The number of alternatives should not be too large, and each alternative should not be too narrow in scope. The danger to which specialism is prone, is narrowness of outlook, and this danger should be avoided partly by making a general intellectual culture compulsory on all, and further, by having each special course fairly broad in scope.

The following courses are suggested as suitable branches in which to specialize:—

1. Humanistic Studies—
   (*a*) English Literature and Language, and History.
   (*b*) History and Geography (largely on its human side).
   (*c*) English Literature and Language, and Music.
2. Naturalistic Studies:—
   (*a*) Physical Science and Practical Mathematics.
   (*b*) Botanical and Zoological Science and Geography (largely on its physical side).
3. Practical Mathematics, Mechanics, and Handicrafts.
4. Art subjects: Drawing, Painting, Carving and Modelling.

In allocating the time between the general culture subjects and those for special study, various plans suggest themselves. The one perhaps most simple is to devote the first year of college training mainly to general culture subjects, and the second year mainly to special study. In both years, of course, the professional study in education and school method should be carried on.

In the special subjects the methods of learning should be markedly different from those adopted in the general culture course. Towards the subjects of the latter the student should be largely in a receptive attitude. There is hardly time for him to do more than assimilate the thoughts of others, come to some understanding of them, and try to make them his own as far as possible. The student is not sufficiently advanced or at home in the subjects for methods of independent inquiry to have place, even were there time for these. We must be content to see him pluck the flowers of knowledge, and not be too careful of how the tree is grown. Assimilation of ideas, however, must not be confused with passivity of mind. It is not mere imbibing. As has been seen in

our analysis of the mental processes of learning,[1] in assimilation there is ample room for active and original thought in the mode of understanding, applying, and expressing ideas.

In the special studies the mode of learning should be marked by more independent and original inquiry. The creative side of the mind, rather than the receptive, should be encouraged. The student should realize by personal experience what it means to gain knowledge at first-hand. He should learn to gather facts for himself, and mark the difference between piling up information and the finer mental process of comparing and weighing facts and judging of their bearing on an inquiry. His mind should be encouraged to leap in creative hypothesis beyond the perceived facts to the imagined explanation, and then proceed, holding his hypothesis in leash, to develop and test it by further critical observations and experiments. By such methods he will learn at first-hand the meaning of knowledge and inquiry, and know, as only those who are inquirers can know, how to discriminate between possibility and probability, error and truth.

Such a mode of study is, in real truth, a "logic". It is logic in a concrete form, implicit in the experience of learning; and it is just this "logic" of the making of knowledge that the teacher needs to guide him in leading the immature mind to creative efforts to gain knowledge. So important to the teacher is this experience of "knowledge making," that we will go further and ask that the processes of inquiry, implicit in the experience of it, should be made explicit by a thorough examination of them to bring out the laws of thought that govern the establishing of truth. We are loath to call such a study logic. The name suggests something too abstract and formal for our liking. Rather do we mean

[1] See chap. iii, p. 76.

that the actual inquiries that the students themselves have carried out should be analysed to lay bare the logical principles involved in observation and experiment, in the accepting and rejecting of testimony, and in the suggesting, unfolding, and testing of possible explanations; and that, on the basis of these examinations, there should be constructed some fairly consistent and systematic idea of knowledge and the method of knowledge. Such a study of "logic," arising out of the student's own processes of study and leading back to them to refine and temper them, would be felt by him to be of vital importance to him both as a teacher and as a learner.

The organization of subject teachers on the staff of a school presents difficulties of detail rather than of principle. To the lay mind the matter may appear a simple one. Allot a teacher to each subject, and the thing is done. Those, however, who have struggled to adjust the claims of classes, subjects, and teachers within the narrow and strict confines of a time-table know that many unseen sandbanks and hidden rocks beset the course of the schoolmaster.

Let us take a concrete case of a school of nine classes, three in each year. The first thing to decide is a mean between the amount of time we should like to give to each subject, and the minimum time that the subject must have. Naturally the time to be given to each branch of the curriculum will vary from year to year. As the pupils advance through the school, practical subjects will become of increasing importance, and will demand a greater share of the time. For the sake of convenience, however, let us be content for the present with an average time for each subject.

The following table gives the times that should be given to each subject:—

	Lessons.	Hours.
English (*a*) Reading and Literature	4	= 5
(*b*) Composition	3	
History	2	= 1½
Geography	2	= 1½
Nature Knowledge	2	= 1½
Art	2	= 1½
Music	2	= 1
Mathematics		
(*a*) Class Exercise	3	= 4
(*b*) Practical Measurements	2	
Handicrafts	2 to 3	= 3 to 4½
Gymnasium Contests	2	= 1
Playground Games	2	= 1
Field Games	1	= 2

For nine classes the times for each of the subjects (leaving out the physical pursuits for the present) total as follows:—

	Hours.
English	45
History	13½
Geography	13½
Nature Knowledge	13½
Art	13½
Music	9
Mathematics	36
Handicrafts	27 to 40½

It is obvious that the subjects of English, Mathematics, and Handicrafts will require more than one teacher, and that each of the other subjects will not occupy the whole time of one teacher, while two such subjects will make too big demands on the time of one.

The practical solution lies in requiring each member of the staff to have two strings to his bow, i.e. to teach a subject which we shall call his principal subject, for

which he is mainly responsible, and also a subsidiary subject, which is the principal subject of another teacher. On the whole body of the staff each subject will be represented at least once by a teacher who claims it as his principal subject, and through whose hands each pupil will pass for a considerable portion of his school time in that subject.

Each subject will, then, be represented on the staff at least twice, and in cases like English and Mathematics three and four times. For example, the following might represent the qualifications of the staff of the school outlined above:—

	Principal.	Subsidiary.
1.	Teacher of English.	Music.
2.	,, English.	History.
3.	,, History.	English.
4.	,, Geography.	History.
5.	,, Nature Study	Geography.
6.	,, Art.	Nature Study.
7.	,, Mathematics.	Handicrafts.
8.	,, Mathematics.	Geography.
9.	,, Handicrafts.	Mathematics.
10.	,, Handicrafts.	Art.

Such an arrangement, it is obvious, will give the head master a freer hand to adjust the claims of classes, subjects, and teachers.

Gymnastics and games we have left for special consideration. In each school there should be a special teacher whose chief domain will be the gymnasium. He will instruct the pupils in running, jumping, leaping, climbing, boxing and wrestling. We cannot, however, consent to see the gymnasium instructor solely responsible for the outdoor games. Games aim at something higher than health and strength. From them we hope

to obtain a strong esprit de corps, a spirit of self-control, and a hardy manliness. In this work we would see every member of the staff engaged. We think, moreover, that the members of the staff would wish to enter into this freer and friendlier aspect of school life. Many teachers have, in common with their pupils, a great pleasure in physical exercise, and many have considerable skill in games and in training boys in playing them. This interest, skill, and aptitude should not be wasted. They will be bonds uniting teachers and scholars in friendly interest from which will spring a willing spirit, a healthy tone, and a strong corporate feeling which will find their way into the indoor life of the school. The intensity and quality of the esprit de corps in a school rest very largely on the life of the pupils outside the classrooms. If the teachers as a body are to mould that spirit, refine it, and reap the benefit of it in a powerful personal influence, they must enter wholeheartedly into all that is concerned with the outdoor life of the pupils.

CHAPTER X.

THE BUILDINGS AND EQUIPMENT.

SPECIALIZATION, adopted as one of the main principles of the school organization, should be applied thoroughly to all its branches, to buildings and equipment no less than to the human instruments of instruction. The culmination of the principle is seen in a collection of rooms, each specially fitted for carrying on one of the pursuits of the school and in charge of a teacher with special knowledge and skill in the teaching of that pursuit.

The present-day ideal of primary school buildings, like the present-day organization of the staff, displays a beautiful simplicity and uniformity of design, a delight to the architect and furniture-maker, and to the casual visitor. The approved plan of buildings consists of a large central hall, ringed with classrooms as like as peas, and equipped with desks and blackboards having a similar monotony of design. The whole is admirably designed to herd flocks of pupils to sit reading, writing, and passively listening. The clerkly ideal has materialized itself in buildings and furniture constructed to inculcate the ideals and develop the habits and habitudes of a sedentary existence. Nowhere in the structure can one discern adaptation to diversity of pursuits, and hardly anywhere do the practical and physical impulses and needs of the pupils find an expression. With such uni-

formity of structure can we wonder that monotonous uniformity of desk and classroom routine is the mark of school instruction, and a dead mechanical power the result of its methods?

As our teachers must awaken to the full realization of the practical and physical needs of artisan pupils, so, too, must the architects and furniture-makers seek to adapt their plans and designs to the aims of an artisan school. The practical and physical should not, as at present, be casual addenda to the main classroom plan. Let us put wholly on one side the traditional idea of school buildings, and, with the aim of an artisan school in mind, seek to express in bricks and mortar its threefold ideal of a cultured, a practical, and a physical manhood. Only so shall we avoid waste and secure efficiency.

Starting with the threefold classification of the school pursuits into cultured, practical, and physical, we note at once that the cultured pursuits are largely occupations of quiet study, with a certain amount of external expression in writing, map-making, modelling, and sketching; the practical require freedom of movement, and result in the busy noise of manual labour; and the physical should be largely conducted in the open air, and require large spaces for the games and contests of bodies of pupils. It would be well, then, to place the rooms for practical work as far as possible from those required for study, and the playground in a situation where the noise of playground games will not disturb the classes at indoor work.

The first necessity is a large, well-lighted and well-ventilated gymnasium fitted with simple apparatus for running, jumping, and climbing contests, for wrestling, boxing, tug-of-war, gymnasium quoits, rope throwing, and gymnasium games. The handicrafts require one

workshop for wood and another for metal-work, to which rooms should be attached a classroom for workshop drawing and for the instructor's demonstrations. For practical mathematics and mechanics there will be needed a large room fitted with benches suitable for practical measurements and work with simple machines and instruments. Many of the machines and instruments can be made in the school workshops. The making of them will provide an exercise in ingenuity for the older pupils. Attached to the mathematics workroom should be a classroom fitted for mechanical drawing and for classwork in arithmetic and geometry.

In proximity to the gymnasium and workshops should be lavatories fitted with wash-hand basins and shower-baths. After vigorous physical exercise, which we have advised to be taken at least twice a week, there should be bathing. The whole body should be washed, and the most convenient mode of bathing a large number of pupils is by means of a system of shower-baths. No reform is more urgent in the primary schools of our working-class and slum quarters than the institution of shower-baths and the formation of the habit of regular bathing after vigorous exercise. To the lack of attention to personal cleanliness is due much of the unpleasant odour that assails the nostrils of visitors to the schools of working-class neighbourhoods. The rapid spread of skin diseases and infectious complaints, too, is largely the result of the same cause. The regular practice of bathing carried out in the schools would do much more than any instruction in cleanliness to create a taste for bathing and to fix the habit of it as a regular routine.

On the culture side, specialized rooms are no less required than on the practical and physical sides. The art teacher needs a room fitted for drawing and painting. The room should be well lighted, and the walls

covered to a moderate height with blackboards for free arm drawing. Drawing desks and easels with seats attached are the needful furniture. Close to the art room should be placed the room for nature knowledge. It should contain boxes and pots of growing plants and seedlings, large jam jars for keeping all manner of twigs, insects and the like, and an aquarium and herbarium. We can imagine, too, a good school being provided with a large window frame for the growing of plants under glass. The art teacher should make considerable use of the material grown in the nature room. Plants, twigs, leaves, flowers, and insects make excellent studies for drawing and painting.

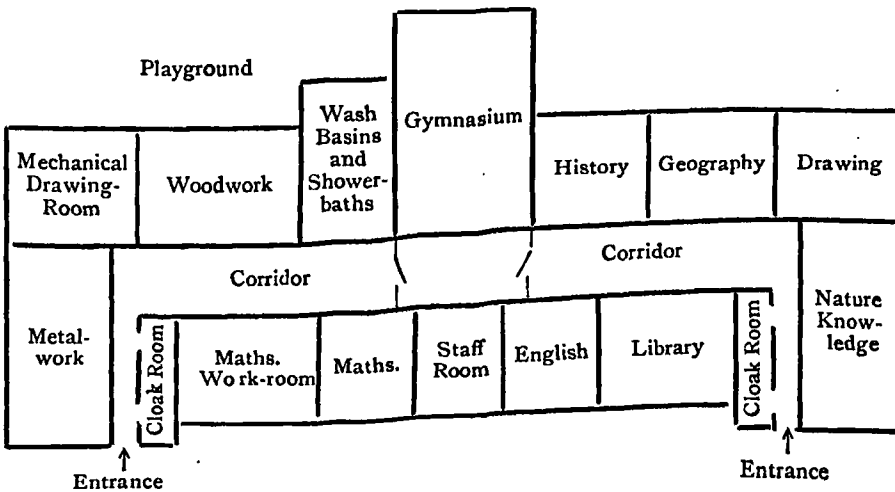
Geography and history being allied subjects, the rooms for the study of them will be next to each other so that there can be a ready exchange of charts, maps, and pictures. The room for geography will be hung with geographical pictures and maps, relief models will be displayed, and there will be folios for containing orographic, temperature, rainfall, regional and other special maps of all the countries studied. A good teacher will make such maps himself. He will himself collect, and encourage his pupils to collect, pictures from magazines, post cards, and railway posters which can be displayed in frames hung on the wall. The frames should have movable backs so that the contents can be changed from time to time. Besides the ordinary desks for the pupils, there should be a number of benches for modelling and the making of cardboard reliefs. The geography room, that is to say, should be a workroom and classroom combined. The history room will be fitted with time charts, historical pictures, maps and specimens. Each of the rooms will contain its library of suitable reference books.

Finally will come the room for the study of English. It is most appropriate that this room should be fitted as a

library and reading-room: for we have seen that the older pupils should be trained to some power of independent reading and study. Attached to it should be a classroom for class work in literature and English.

It will be noted that we have made no mention of a large hall. Such a room we believe to be an unnecessary expense. Where it exists, its main function seems to be for school displays, the collection of all the foul air manufactured in the building, and the glory of the school architect. Few practical teachers will regret its absence. For school assemblies each morning and on other occasions, the gymnasium will provide a large enough space.

Keeping in mind all the above requirements, we have ventured to give a plan of a building to meet them. We do not pretend to any skill in building design, and the plan below is intended only as a rough representation of the kind of rooms required and their relative position. The details are for an architect to work out.



There remain to be considered the requirements outside

the school buildings for games and contests and other forms of physical pursuits.

It was a wise policy that insisted on playgrounds for all public primary schools. The wisdom, however, stopped short at providing the means. It failed to stimulate the educational spirit that would make the playground an educational instrument. It is truly astonishing to find a means of grace at the very doors of the school, and to discover that nothing so far has been done to develop a system of games and sports suited to playground conditions and organize arrangements for the fullest use of the playground space.

For fifty years the playground has been regarded largely as a place for assembling the pupils to enter the school, and into which to turn them for recreation once a session. The teacher seems to consider that his active responsibility stops at the doorstep, and, having seen his charges over the threshold, he leaves them, during the interval, to the free exercise of all their impulsive instincts. The playground is truly a place to witness a schoolboy in the exercise of all his freedom. He is free from the classroom passivity, silence and discipline; he is free, too, alas, to give vent to every physical and selfish impulse that surges upward to find an unbridled expression in action. The playground, during a school interval, is usually a bear garden, in which the pupils—a rushing, shouting mob of boys—scramble about, pushing and knocking each other down, playing rude tricks and rough practical jokes, regardless of everything except the satisfaction of their rude physical impulses. A few of a more nervous and delicate temperament retire from the crush to the safety of secluded corners to await the welcome sound of the school bell.

The playground, as at present used, or rather misused, too often serves as a training-ground for all the virtues

and vices of hooliganism, where the strong rule by virtue of their strength, and the weak, in body and spirit, are bullied into passive acquiescence. It cannot but be admitted that, when boys are left to themselves, they tend to become a disorderly, bullying, shouting, quarrelling mob, and mob law and methods to be the substitutes for law and order. A comparison of a group of primary school boys at play with a team from a public school playing a game, reveals most forcibly the mob rule of the former and the disciplined social spirit of the latter. The primary school boys play their game under no recognized authority, and with no definite law of the game and code of fair play. Each interprets his nebulous conception of the rules of the game as suits his own convenience, and the loudest voice and the most assertive fist decides each disputed point. It is no unknown thing for a couple of boys to emerge from a football scrummage to fight it out with fists, or for the boy in possession of the bat at cricket when played out too early for his dignity to knock the wickets down, or throw the bat away, or walk off with it in his possession, or with noisy assertion to hold his ground. All these incidents the writer has only too often witnessed. Those with much experience of boys who have had no discipline in social games and who are left to themselves in their play, well know that quarrelling, squabbling, bullying, sullen obstinacy, and passionate resentment are only too frequent accompaniments of the game.

With a team from a public school, none of all this is seen. The team exhibits all the characteristics of a well-ordered and disciplined social community in which law, order, authority, and a strong public spirit are not inconsistent with self-assertion and independence. The self, however, does not assert itself in opposition to the social law, but in support of it. The members of the

team are no less happy and no less enthusiastic than the primary school boys. Indeed, they enjoy the game all the more because of its well-ordered character. Quarrelling, disputes, obstinacy, passion are seldom witnessed, and, when exhibited by any individual, are received by the rest of the team in a manner that sufficiently impresses the offenders with the magnitude of the outrage. The members of the team look to their captain with respect, the younger boys with some degree of reverential awe, for he holds his position, not by the rough-and-tumble methods of a street bully, but by years of trial and competition in which, by his skill and his power of command, he has shown his ability for the position he holds. No one who has seen these two very diverse modes of playing games can doubt the bent to hooliganism given by the first, and the training in social spirit and disciplined self-control by the second. It is the latter form of play that the organization of the playground games should strive to produce. No reform of the primary school tone is more needed than a reform in the spirit and the manner in which its pupils conduct their play.

Primary school teachers, when taken to task with regard to the playground chaos, usually retort: "But what can one do with three or four hundred boys in one small playground?" The answer indicates the inability of the average teacher to see beyond traditional methods. He is so accustomed to the playground being used only for the recreation of the whole school during the same quarter of an hour, that he cannot imagine the playground being in use during five hours each day. The playground is there to be used during the twenty-five working hours of the week as much as are the workshop, the gymnasium, and the classroom. There is plenty of time to give each class two lesson periods per week at disciplined games,

which would go a long way towards inculcating a more disciplined control over the physical impulses and egoistic passions. "But," retorts the teacher, "the continuous noise of play throughout the day would disturb the whole school." So it would, if the games were conducted according to the noisy mob-rule usual in the playground. Disciplined play, however, is a much quieter and more serious affair. It is one of the great disciplines of games that boys are trained to play earnestly and seriously, and without undue noise.

We cannot sympathize, then, with the plea that there is no opportunity for organized games in the primary school. The means lie at the school door. It is only the routine of tradition and the sway of the classroom spirit that permit playgrounds, large enough for organized games for forty or fifty pupils, to remain totally unused for any educational purpose.

The games and contests for the playground would need to be suited to playground conditions, viz. a confined space, the proximity of windows, and a hard and sometimes slippery surface. Cricket, football, and hockey are therefore unsuitable. Games in which a boy may be thrown violently to the ground are obviously out of place. There are, however, many running, ball, and struggling games that are excellent for the playground. Hand-ball or basket-ball is an excellent substitute for football. Whirligig, prisoner's base, chivy, and follow-my-leader are good running and catching games. Leap-frog and its many variations, rounders, fives or rackets, quoits (with rope rings) are all suitable. There are, too, many simple exercises in running, leaping, throwing, and kicking a ball, that can by a little creative imagination be elaborated into short games or contests, and will provide excellent exercise for short spells of five or ten minutes. For example, place the boys round in a ring and space

them about one yard apart. Let a football be passed rapidly from boy to boy, sometimes to the right, sometimes to the left, sometimes across the ring. A variation on the above is to place a boy in the middle with the football. He "shoots" it fast and low against the ring with the object of piercing it. The boys in the ring try with their legs and feet to prevent the ball passing through. Such exercises, conducted with spirit and vim, are eminently suited for five or ten minutes' practice, after which the teacher should change quickly to some other form of spirited contest.

Excellent as may be the use to which the gymnasium and playground are put, there is still a place for playing fields. Nothing, after all, can take the place of our national games of cricket and football. It is a disgrace to national education that the boys of a nation that is worthily proud of its national sports can leave the national schools with only the vaguest knowledge of the rules, methods, and spirit of these games, and without having been trained to the disciplined enjoyment of them. They are as much a part of the nation's heritage as its literature, its history, and its songs. We realize that the school has not done its duty if its pupils prefer a "penny dreadful" to good literature, and the music-hall song to a good melody. It is equally a disgrace if they prefer loafing, pitch penny, or shouting for a local team to the higher enjoyment of playing organized cricket and football. Hence, if the schools are to bring the national heritage of sports into the lives of the masses of the nation, each school must have at its command some wide open space to use as its playing field.

At first sight the provision of playing fields for the nation's schools seems an overwhelming proposal. A little reflection, however, will show that it is not so difficult a task as it seems. In most large towns there are several

recreation grounds and open spaces dotted here and there that are under the control of the municipal authorities. During the day these spaces are, in a large measure, unused and unoccupied. The writer has taken the trouble to examine the large public recreation spaces of a large industrial town in the north in relation to the schools in the vicinity of them. In one quarter of the town are seven large schools. All these schools are within ten minutes' walk of one or other of three large recreation grounds. Yet not one of these schools makes any organized use of these spaces for regular school games in school time. Some of them, it is true, have a school football and cricket club, and the teams practise on these open spaces after school hours under the supervision of one of the staff who voluntarily gives his time. All this is to the good, and all honour to those teachers who give of their spare time. A school team, however, is but a drop in the ocean. It only touches the fringe of the problem. School games should reach every member of the school. If they are good for the boy who is naturally apt at games, they are all the more needed for the one who is diffident and backward. It is idle, then, to speak of lack of opportunity when the means of training a hardier physique and a hardier manhood lie at the door of the school or, at any rate, within easy reach of it.

We have emphasized most strongly the importance of training in the great mass of the nation a hardy physique and a strong, resourceful manhood. The pursuits of the school workshops, the gymnasium, playgrounds, and playing fields, if used to their fullest extent as hard educational disciplines, are some of the means which we suggest will do much to counteract the weakening effect of the sedentary life of the classroom. So much, however, do we hold that the strength of a nation, its enterprise, and its power to extend its civilization and its

race over the world depend on the physique, the resourceful initiative and the independence and resolution of its citizens, that we would leave no stone unturned to develop these qualities in the youth of the nation. Town life, even when strongly seasoned with practical and physical pursuits, cannot fully give the training necessary. The home, the schools, the shops, the trams and railways, and the hundred and one other resources of civilization in a town do so much in every way for the town boy, that he never learns what it means to face things with only his own wits and hands on which to rely. We would suggest that every boy, as a climax to his school career, spend some period, at least a month, entirely away from town conveniences, and be placed under such conditions that he will have to fend for himself, and so learn to stand on his own feet. Such a training is given in camp life.

During the last decade, camping has been a favourite summer recreation among all classes of society. It appeals to the Englishman's love of freedom and independence. He delights in being away from the smaller conventions of town civilization, and enjoys the fun of looking after himself. Roughing it in the open air gives a keen edge to his holiday. Many schools and boys' clubs organize summer camps, but these are largely holiday camps for recreation. Boy scouts and cadet corps take their camping more seriously. Military drill, manœuvres, and "scouting" of various kinds form a serious part of the daily routine. The work is harder, and the discipline stricter than that of the holiday camp. In other words, the camp has a definite and serious educational aim; and there is no doubt that the "roughing it," the work, and the discipline have a great influence in forming character. Moreover, the boys enjoy the camping all the more because of the hardship, the work, and the discipline.

The school camp we have in mind is no holiday camp, but one with a serious educational aim. The boys should go there for work, not play; for hard discipline, not to "do as you please". It should be a school in as strict a sense as the school in the town, having its organization, its classes, its occupations, and its discipline. Moreover, it should not be a voluntary effort on the part of this or that school. It should be a regular institution organized by the education authorities of our large towns and managed and staffed by them. Every primary school boy should spend, during his last year at school, at least one month in camp.

The work of a camp school should be largely outdoor work of a practical and physical character, though there will need to be indoor exercises in English, History, Geography, and Mathematics. These could be taken either early in the morning or in the evening, so as to leave the main part of the day for open-air pursuits. In correlation with the culture studies, there should be surveying, map-making and contouring, the observation of river drainage and erosion, and field work in nature knowledge. The practical occupations should embrace the hardier and heavier kinds of manual work, such as draining, rail-splitting, fencing, simple road-making, bridge-building, and gardening in the camp allotment. A portion of each day should be spent in physical recreation, such as football, hockey, cricket, and swimming. Running, jumping, and climbing contests, boxing and wrestling, should also be practised, in the open in suitable weather, under cover during wet weather.

The discipline of a large camp in which the pupils are mainly engaged in active outdoor tasks needs to be of a semi-military character. This we are by no means averse from, nor do we hesitate to recommend the practice of military drills and evolutions of a simple character.

The spirit and habit of strict, exact obedience and of precision in carrying out orders to the letter are qualities greatly needed in a large social organism. It is the price we pay for living in an advanced and complex civilization. Military drills and the evolutions of a number of companies co-operating under strict discipline to carry out some concerted action give an excellent training in the habit of strict and exact obedience. The evil of such training lies in over-emphasizing passive obedience at the cost of independent thought. Hence, as a corrective to the automatism of drills and field movements, there should be exercises in individual scouting and patrolling to bring into play each individual's initiative and resource. Instruction and practice in fire-drill and first aid should also form part of the work of a camp school.

The object of the camp school, we have seen, is to train pupils to stand on their own feet. This aim should be thoroughly realized in every particular. All the work of the camp should be done by the pupils as far as it can be done. The boys themselves should cook, clean, and wash under the direction of experienced adults. Each boy will make his own bed and be responsible for the tidiness and cleanliness of his own quarters. We wish the boy on leaving camp to be able to "fend" for himself in every particular.

The camp should be situated on some wide, open moorland where field work can be indulged in without damaging hedges and fields. Some of the buildings, as the dining-rooms, classrooms for indoor work, gymnasium, recreation rooms, and hospital, should be permanent structures. The pupils should sleep under canvas or in large wooden sheds. The pupils should "rough it," and the staff should set the example.

APPENDIX.

AN ACCOUNT OF THE DAY PREPARATORY TRADES SCHOOLS OF THE CITY OF LEEDS.

In 1905 the Leeds City Education Authority, acting on the advice of the Secretary for Education, Mr. James Graham, instituted as an experiment two Day Preparatory Trades Schools, one in the Woodhouse, the other in the Holbeck district. The aim of these schools was not to give any specialized training in the actual trades the pupils would be likely to pursue on leaving, but to give a broad and yet thorough "preparatory" training in such wood and metal work and practical mathematics, mechanics, and drawing, as would form a sound practical basis for most of the skilled trades carried on in the city, and from which the pupils could step easily (1) to the specialization of the employer's workshop, and (2) to the more thorough treatment of the scientific basis of trade processes that is given in the evening technical school. At the same time the work done in the schools was not to be of any artificial and merely "classroom" character. In all the details of the handwork and of the mathematics, mechanics and drawing, the exercises were to be of as practical and workshop-like a character as possible. The pupils were to be faced with practical problems very similar to those existing in the workshops of the city.

Although the practical was given a very prominent position in the curriculum and took by far the largest share of the time, it was felt that culture should not be altogether absent. Hence a considerable share of time was allotted to English Literature and Composition to encourage a taste for reading, and to give a command over language.

The schools accepted boys who had passed Standard VI of the primary school, and the course was designed to run over

two years. It is claimed both by Mr. Graham and the Head Teachers, however, that much of the work could be included in the curriculum of the last two years of the primary school if the leaving age were raised to fourteen years.

The experiment has proved itself a great success. The employers who have engaged pupils on leaving the school speak most highly of their intelligence, practical skill, interest in trade processes, and sense of responsibility. In school the pupils are interested in their work, appreciate the value of it, and are eager to advance. Most of the pupils on entering a workshop attend evening continuation schools, and many of them after leaving school have risen to posts of very considerable responsibility in the works in which they have been employed.

The following is a summary of the occupations entered by the boys who have left the schools :—

Employment.	No. of Boys.	
	Holbeck School.	Woodhouse School.
Mechanical Engineering . .	70	64
Electrical Engineering . .	7	16
Draughtsmen	12	11
Building Trades	1	13
Other Skilled Occupations . .	9	21
Unskilled Occupations . .	6	12
Commercial Occupations . .	15	13
Occupations not known . .	40	26
Total Number of Boys who have left the schools up to July, 1912.	160	176

The Curriculum and the Amount of Time given each week to each branch of it are as follows :—

Practical Mathematics (Arithmetic, Simple Algebra, and Geometry)	6½ hours per week.
Practical Mechanics	3 „ „
Technical Drawing	4½ „ „
Workshop Practice	6½ „ „
English	5½ „ „
Drill and Games	2 „ „
Total . . .	28 „ „

The Schemes of Work in each branch of the curriculum are as follows :—

ENGLISH.

(*a*) Exercises in Reading to encourage a taste for good literature.

(*b*) Practice in the art of clear and accurate expression, including Spelling, Notes of Lectures and Experiments, Letter-Writing, and Simple Essays.

The subject-matter of much of the essay writing and some of the reading embraces such topics as: Processes of Manufacture, Materials used in Industry, Mechanical Principles applied in the Construction of Machinery, and the History of Iron, Steam, Electricity, etc., in the progress of Industries.

PRACTICAL MATHEMATICS.

Revision of Vulgar and Decimal Fractions.
English and Metric Systems of Measurement and methods of conversion.
Averages, Ratio, Percentage, and Proportion.
Simple Algebra (including Equations).
Approximations with estimation of the degree of accuracy possible in practical measurements.
Contracted Methods.
Logarithms and the use of Tables.
Graphical Representation and Solution of Problems.

The whole of the above to be taught, applied, and practised in relation to the practical processes of measurement common in the workshops and trades of the city.

PRACTICAL GEOMETRY.

Practical Problems involving Lines, Angles, Arcs, Circles.
Simple Mechanical Notions graphically represented.
Areas of regular and irregular Plane Figures with graphical verification of formulæ.
Applications of Engineers' Rules and Shop Methods.
Setting Out.

Simple Field Work in Surveying, including Judging of Distances and Heights.

Projection of Solids, including Sections and leading to Developments and Built-up Work.

PRACTICAL MECHANICS (almost entirely experimental work).

The Verification of Simple Laws and Rules involving Experiments in relation to Length, Area, Volume, Derivation and Comparison of Units, Measuring Instruments, and Limits of Accuracy, with practical applications of the above rules.

Measurement of Mass, Weighing by Spring and Beam Balances, Comparison of Units of Mass, Displacement, Density, Specific Gravity, Flotation, Pressure and Head of Water, Syphon, Simple Pump, Hydraulic Press.

Experiments on Force with reference to Resultant and Equilibrant, Parallelogram and Triangle of Forces, Moments, Levers, Centre of Gravity, Steelyards, Reaction on Supports, Principle of Work, Horse Power, Friction, Machines, Mechanical Advantage and Efficiency of Gin Block, Wheel and Axle, Three and Five-Sheaved Pulley Blocks.

Experiments on Heat with reference to Change of State, Expansion, Units of Heat, Thermometers, Comparison of Fixed Points, Conduction, Convection, Radiation, Melting Points, Steam Raising Plant.

TECHNICAL DRAWING.

Use and Care of Instruments.

Principles of Projection and of Geometry applied to Machine Drawing.

The making of dimensioned Free-Hand Sketches of Machine Details from actual examples.

The methods of arranging, spacing, and dimensioning Drawings.

The preparation of finished Working Drawings, Tracing, and Blue Printing.

WORKSHOP PRACTICE.

Woodwork—

Use of common Woodworking Tools, application to Simple Pattern-Making, including Methods of Construction, Shrinkage, Contraction Rules, Core print and Box Making, Wood Turning.

Bench Work—

Use of Chisels, Hack Saw, Files, Scrapers, Marking Tools, Gauging and Measuring Tools, Methods of Fastening, Assembling of Parts.

Lathe Work—

Use of Double Geared, S.S. and S.C. Gap-Lathes (complete with necessary fittings).

Care and Formation of Cutting Tools in Carbon and High Speed Steels.

Exercises, including Sliding, Surfacing, Taper Turning, Boring, Screw Cutting, Chasing, Knurling, and Hand Turning.

WORKSHOP EQUIPMENT OF THE HOLBECK DAY PREPARATORY TRADES SCHOOL FOR 20 BOYS.

The scheme of practical training includes exercises which involve the underlying principles of the various branches of industry.

1. Bench Work: (i) Woodworking (pattern making).
   (ii) Metal Work (fitting).
2. Lathe Work: (i) Wood Turning.
   (ii) Metal Turning.
3. Forge Work.
4. Metal Plate Work.
5. Moulding and Casting.

1. Bench Work.

(*a*) *Woodwork.*

(i) Furniture :—

Bench to accommodate 4 boys with side and tail vices, drawers and cupboards for storing tools.

(ii) Tools :—

Sawing and boring steels.
Complete set of woodworking tools.

(*b*) *Fitting.*

(i) Furniture :—

Benches for 20 boys with hardwood tops and fitted with drawers and lockers and various kinds of vices.
Bench for marking off and for demonstration, fitted with drawers and cupboards for storing special tools, and a cast-iron marking-off table.

(ii) Tools :—

A complete set of fitter's tools in the drawer of each bench.
Special tools :—
Various kinds of callipers and compasses,
Scribing block, vee blocks, and surface plates.
Hand vices, large try-squares, pliers, hack saws, and hand-drill.
Taps, stocks and dies, and drills.
Chipping chisels and scrapers.

2. Lathe Work.

(*a*) *Wood Turning* (including pattern making).

Machines :—

4 in. centre hand turning lathe geared for wood-

turning, with slide rest attachments and set of tools.

(*b*) *Metal Turning.*

Machines:—

$4\frac{1}{2}$ in. and $3\frac{1}{2}$ in. centre, screw cutting, sliding, and surfacing gap-lathes (with accessories).

3 in. centre, hollow spindle chuck lathe (with accessories).

Other machines required in lathe work.

Punching and shearing machine.

Hand and treadle bench drilling machine, with revolving table and machine vice.

3. Forge Work.

Forge fitted with fan and adjustable hood.

Grindstone and trough.

Anvils and cast-iron stands.

Two complete sets of tools.

Swage blocks, swages, fullers, sets, hammers.

4. Metal Plate Work.

(i) Furniture:—

Bench with broad top protected by sheet-metal covering, and fitted with sockets for stakes, etc.

Gas fittings for stoves and blowpipe.

(ii) Tools:—

Various soldering bits, shears, pliers, hammers, and mallets.

Tinman's anvil, stakes, creasing tools, and cramps.

5. Moulding and Casting.

(i) Furniture:—

Trough bench with sliding table and cupboards.

(ii) Tools:—

Set of moulder's hand tools, cast-iron boxes and riddle.

Plumber's melting pot and ladles.

EQUIPMENT FOR THE PRACTICAL MECHANICS WORKROOM FOR 20 BOYS.

The scheme provides practical exercises in measurements in the sciences which underlie various branches of industry.

Sections.

1. Length and Area.
2. Volume, Mass, Weight.
3. Density, Relative Density, Flotation, Pressure of Fluids.
4. Levers, Friction, Simple Machines and Mechanisms.
5. Heat.

Apparatus required:—

1. Length and Area.

Metre and half-metre boxwood rules graduated in cms. and tenths of an inch.
Steel rules.
Callipers (inside and outside), compasses, dividers.
Callipers (vernier) graduated in inches and cms.
Screw gauges to read ·001 cms. and ·001 ins.
Opisometer.
Squared paper in inches and cms.
Accurate beam balance and domestic balances to register ·14 lb., with weights in grammes and ounces.
Scissors, pins, sheet metal, cardboard.

2. Volume, Mass, Weight.

Set of graduated measuring cylinders.
Litre, gallon, and pint measures.
Spring balances to register 30 lb.
Weights up to 56 lb. and 20 kilograms.

Burettes to measure tenths of c.cs.
Specific gravity flasks.
Hare's apparatus and U tubes.
Apparatus for Boyle's Law.
Hydrometers (various kinds).
Spouting can for displacement of water.
Can with holes at various heights to indicate liquid pressure.
Model pump (glass).
Flask fitted with three-holed stopper and tubes for fluid pressure experiments.
Sets of solids of regular geometrical outline in various woods and metals.
Irregular solids, some heavier and others lighter than water, for flotation experiments.
Springs of various strengths, rubber cord.
Mercury, common salt, copper sulphate, methylated spirits, paraffin, sand.
Beakers, funnels, pipettes, glass and rubber tubing, pneumatic troughs, enamelled jugs, retort stands and attachments, string, Mohr's clips.

4. Levers, Friction, Simple Machines and Mechanisms.

Long wooden beams, from 4 ft. to 6 ft. in length.
Stands and supports suitable for carrying small levers.
Steelyards (commercial type and simply constructed ones).
Board with slots for experiments on forces.
Pulleys to fit slots and small scale pans.
Graduated angle disc.
Friction planes and slides of various materials.
Inclined plane with brass roller.
Pulley blocks, ropes, and hooks.
Wheel and axle apparatus.

5. Heat.

Metal ball and ring, bar and gauge, compound metal strips.

Tank fitted with rods of various substances to demonstrate differential conduction.

Block of wood with brass let in for demonstrating the differential conduction of heat.

Potassium permanganate, turpentine, naphtha, wax.

Test tubes, bunsens, tripod stands, wire gauze, metal funnels.

Furniture.

Laboratory tables, balance stands, cupboards with glass panels, fixture for suspending apparatus, gas connexions, water connexion and trough sink, lecture table with gas and water connexions.

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